Child Deaths
IN MICHIGAN
section three

A Summary of Michigan Child Mortality Data and Child Death Review Team FINDINGS

A Note on the Data Used in this Report

There are two types of data presented in this report: *Michigan Mortality Data from Death Certificates* and *Child Death Review Team Findings*. The purpose for presenting child death data in this manner is to provide an overview of all child deaths using the *Michigan Mortality Data from Death Certificates* and then "drilling-down" to more specific issues surrounding those deaths using the *Child Death Review Team Findings*.

Michigan Mortality Data from Death Certificates are the official count of child deaths in Michigan from death certificates completed at the county level and submitted to the Division for Vital Records and Health Statistics, Office of the State Registrar at the Michigan Department of Community Health (MDCH). Included in this data are children ages 0 to 18, who died in the State of Michigan in a particular year. Vital Records continues to update the *Michigan Resident Death File* with changes and late additions after the year is completed; therefore, the numbers presented in this report may differ slightly from those published on the MDCH website. Mortality rates were calculated using age- and race-specific population estimates from the U.S. Census Bureau. Child mortality rates were computed as the number of child deaths per 100,000 population in a specified age group. Infant mortality rates were computed as the number of infant deaths ages 0 to 12 months per 1,000 live births.

Child Death Review Team Findings are compiled from *CDR Case Reports*. These reports were completed by local Child Death Review teams during the review of a child's death, and compiled at the CDR state office. Included in this data are children whose death was reviewed by a local team in a particular year. Deaths are not always reviewed in the year of occurrence, especially when the death occurs late in the year. Therefore, *Child Death Review Team Findings* from 2002 will include deaths from previous years, and some 2002 deaths will be included in the 2003 review findings.

Since the two types of data track different cohorts, the reader is cautioned not to make direct one-to-one comparisons between the *Michigan Mortality Data from Death Certificates* numbers and the *Child Death Review Team Findings* numbers.

Table 11
Number and Percent of Child Deaths Reviewed by Year of Death

Year of Death	Year of Review			
	2002		2003	
	Number	Percent	Number	Percent
1996	0	0.0	1	0.1
1997	0	0.0	0	0.0
1998	2	0.2	0	0.0
1999	0	0.0	0	0.0
2000	20	2.2	1	0.1
2001	229	25.5	21	2.5
2002	648	72.1	200	24.2
2003	–	–	605	73.1
Total	**899**	**100.0**	**828**	**100.0**

Michigan Child Mortality:
Summary of 1990-2003 Data from Death Certificates

Figure 2
Michigan Child Deaths, Ages 0-18, 1990-2003

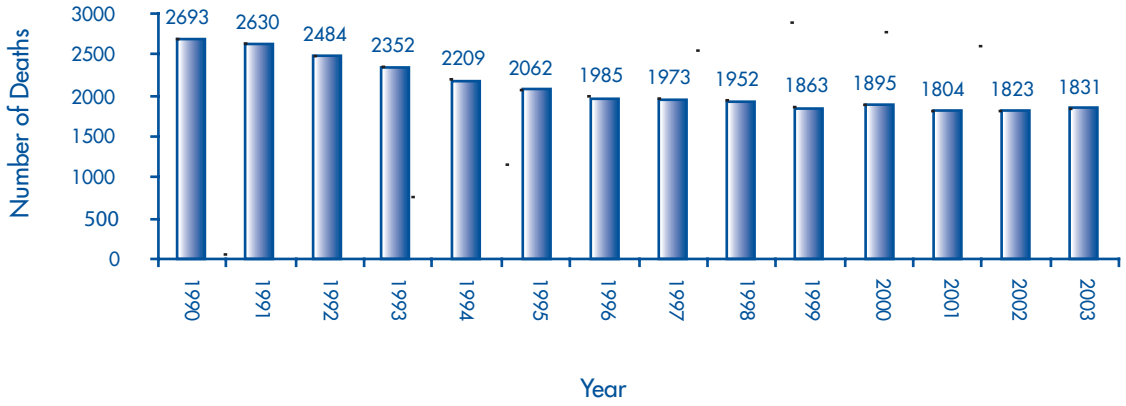


Figure 3
Michigan Child Death Rates, Ages 0-18, 1990-2003

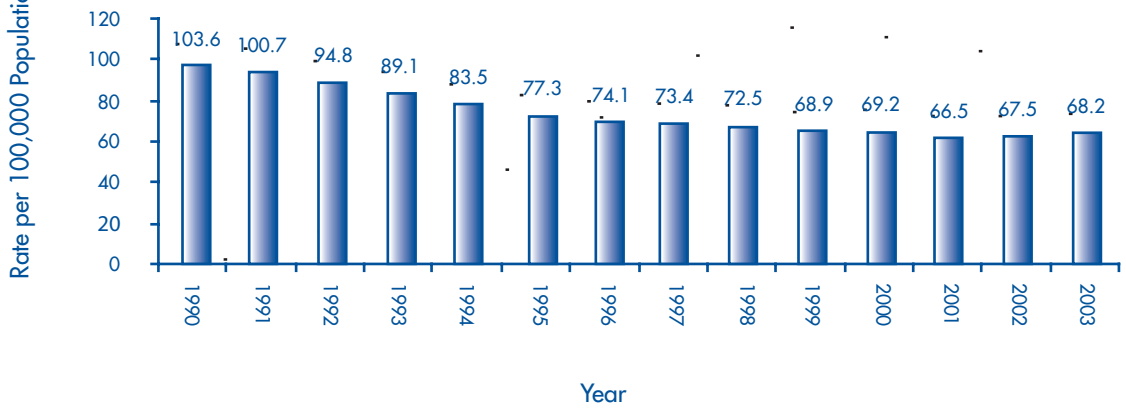
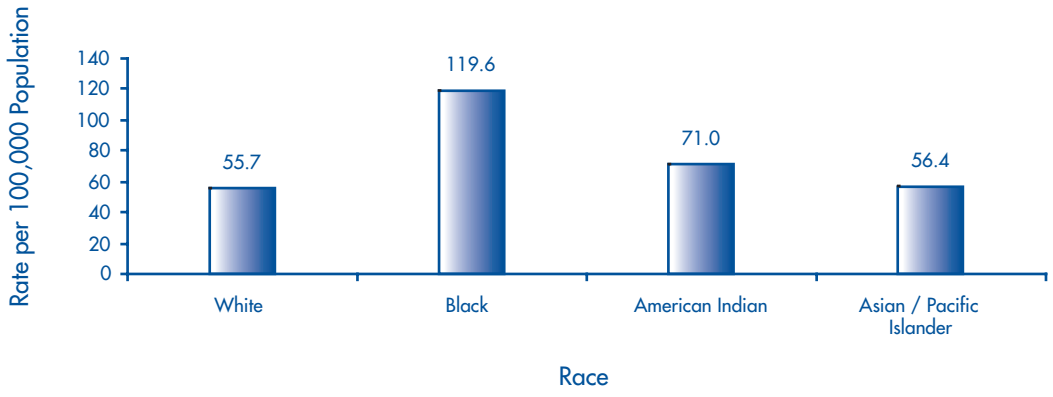


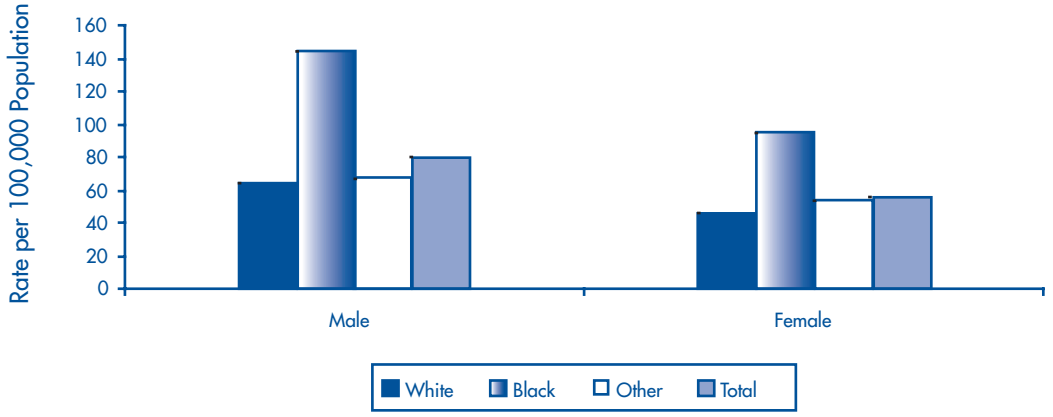
Figure 4
Michigan Child Death Rates by Race, Ages 0-18, 2003



Black children continue to die at a disproportionate rate compared to other children. In 2003, black children had a death rate 2.1 times that of white children. The good news is that mortality for black children has declined 47% since 1990, which is more rapid than the decline in mortality for white children (29%).

In 2003, roughly seven percent of Michigan's child mortality was to children with Hispanic/Latino ethnicity, which is a death rate of 88.9 per 100,000 population. This is a 24% increase in mortality for Hispanic/Latino children since 1990, for a population that has nearly doubled in that time.

Figure 5
Michigan Child Death Rates by Sex and Race, Ages 0-18, 2003

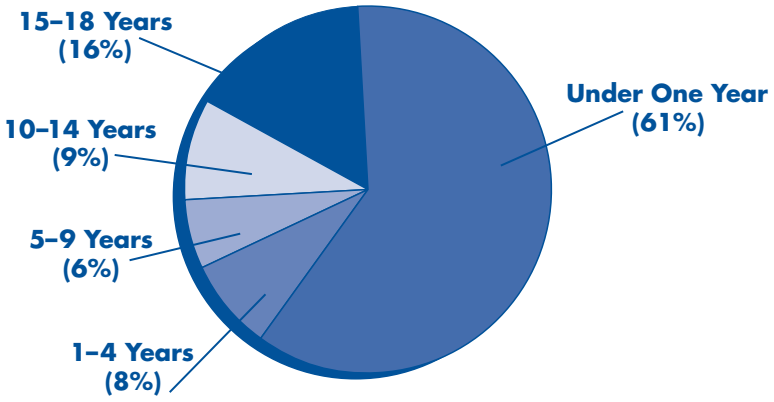


Males continue to die at a higher rate than females; black males in particular have the highest rate of death. In 2003, males had a death rate 1.4 times that of females. Mortality for both males and females has declined 34% since 1990.

Table 12
Number and Percent of Michigan Child Deaths by Manner and Cause, 2002-2003

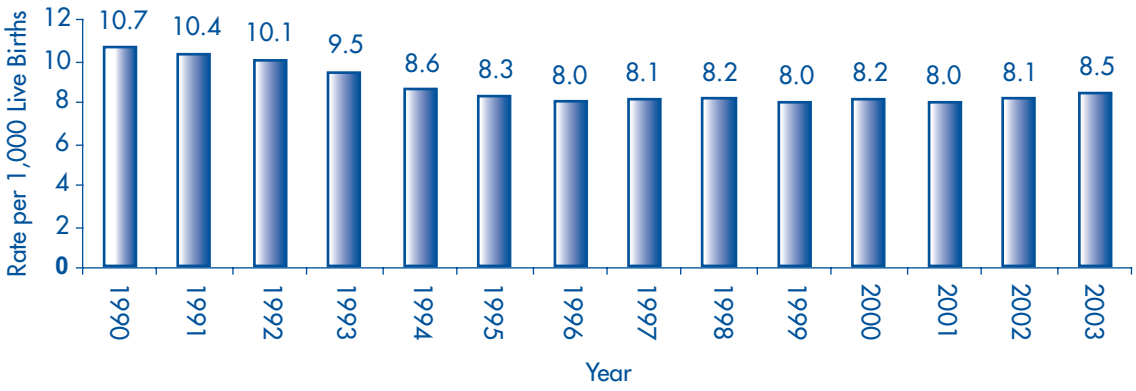
Manner and Cause of Death	2002		2003	
	Number	Percent	Number	Percent
Natural	1292	70.9	1325	72.4
Perinatal Conditions	575	44.5	628	47.4
Congenital Anomalies	224	17.3	232	17.5
SIDS	85	6.6	49	3.7
Neoplasms	79	6.1	74	5.6
Nervous System Diseases	71	5.5	75	5.7
Circulatory System Diseases	51	3.9	66	5.0
Respiratory System Diseases	44	3.4	63	4.8
All Other Natural Causes	163	12.6	138	10.4
Accident (Unintentional)	385	21.1	377	20.6
Motor Vehicle	217	11.9	215	11.7
Suffocation or Strangulation	62	3.4	58	3.2
Fire and Burn	34	1.9	41	2.2
Drowning	37	2.0	36	2.0
Firearm and Weapon	4	0.2	2	0.1
All Other Accidents	31	1.7	25	1.4
Homicide	80	4.4	67	3.7
Firearm and Weapon	52	2.9	40	2.2
Child Abuse and Neglect	12	0.7	6	0.3
All Other Homicides	16	0.9	21	1.1
Suicide	50	2.7	47	2.6
Firearm and Weapon	28	1.5	19	1.0
Suffocation or Strangulation	19	1.0	23	1.3
All Other Suicides	3	0.2	5	0.3
Undetermined	16	0.9	15	0.8
Total	**1823**	**100.0**	**1831**	**100.0**

Figure 6
Michigan Child Deaths by Age Group, Ages 0-18, 2003



Infant Deaths (Ages 0-1)

Figure 7
Michigan Infant Death Rates, Ages 0-1, 1990-2003



Michigan had 1,054 infant deaths in 2002 and 1,112 infant deaths in 2003. Infant mortality rates are calculated by the number of infants that died in a year per 1,000 live births; rather than per 100,000 population for other age groups. While the birth rate increased one percent between 2002 and 2003, the infant death rate increased five percent. However, the infant death rate is still 21% less than it was in 1990.

Of the deaths to infants in 2003, 69% occurred during the neonatal period (within the first 28 days of life). The increase in the infant death rate in 2003 is due to an increase in neonatal period deaths. The postneonatal death rate (between 29 and 364 days of age) remained the same from 2002 to 2003.

While the decline in infant mortality since 1990 was similar for black infants (19%) and white infants (15%), substantial racial disparities remain. In 2003, black infants had a death rate 2.6 times that of white infants, which is a larger gap than the disparities that exist for all children aged 0-18 years.

Figure 8
Michigan Infant Deaths by Manner, Ages 0-1, 2003

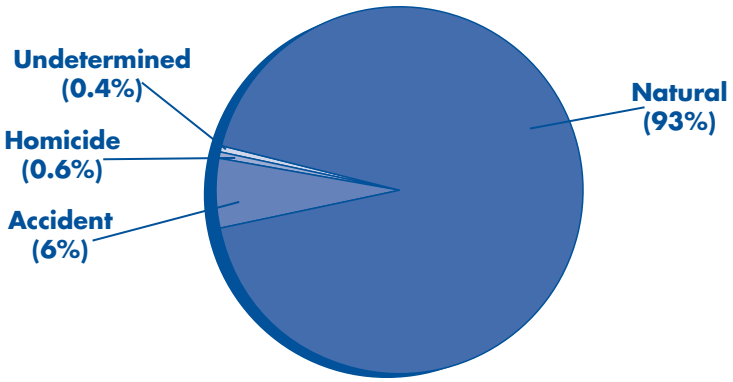
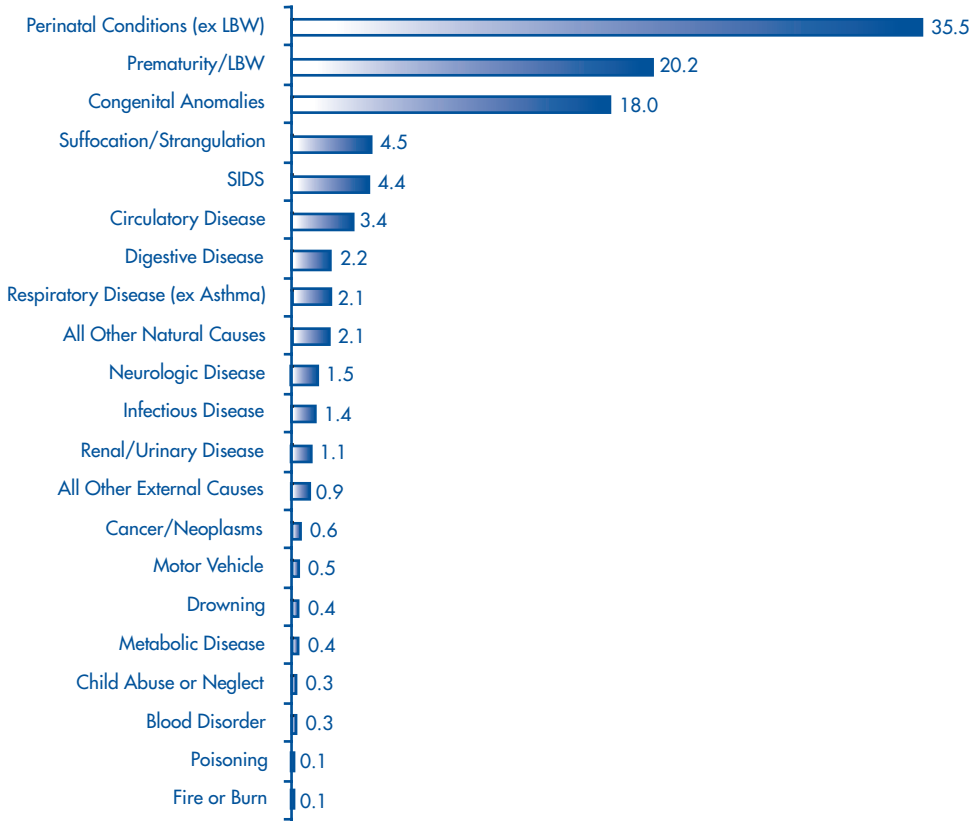


Figure 9
Percent Causes of Michigan Infant Deaths, Ages 0-1, 2003



Child Deaths (Ages 1-18)

Figure 10
Michigan Child Death Rates, Ages 1-18, 1990-2003

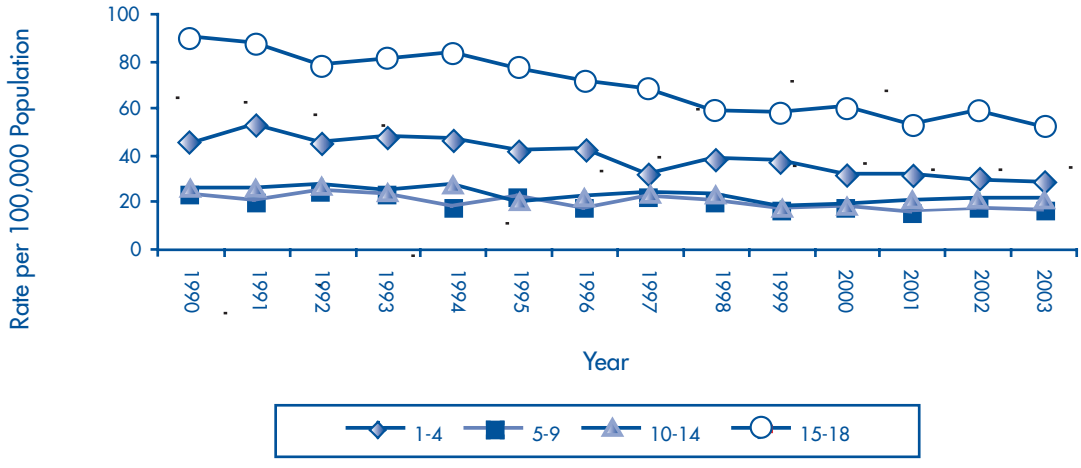


Table 13
Michigan Child Death Rate and Percent Decline, Ages 1-18

Age Group	Rate in 2002	Rate in 2003	Percent Decline Since 1990
1-4 Years	28.6	27.6	37.7
5-9 Years	17.1	16.2	28.3
10-14 Years	21.0	21.1	16.9
15-18 Years	58.1	51.5	42.8

The large decline for 15-18 year olds can be attributed primarily to the dramatic drop in the homicide rate for this age group, which has decreased 75% since 1990.

Figure 11
Michigan Child Deaths by Manner, Ages 1-4, 2003

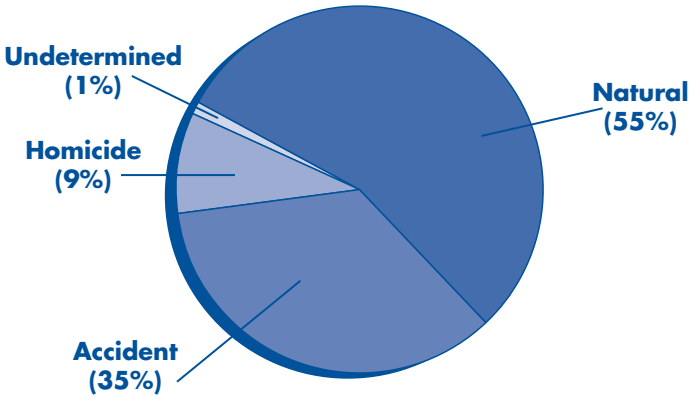


Figure 12
Percent Causes of Michigan Child Deaths, Ages 1-4, 2003

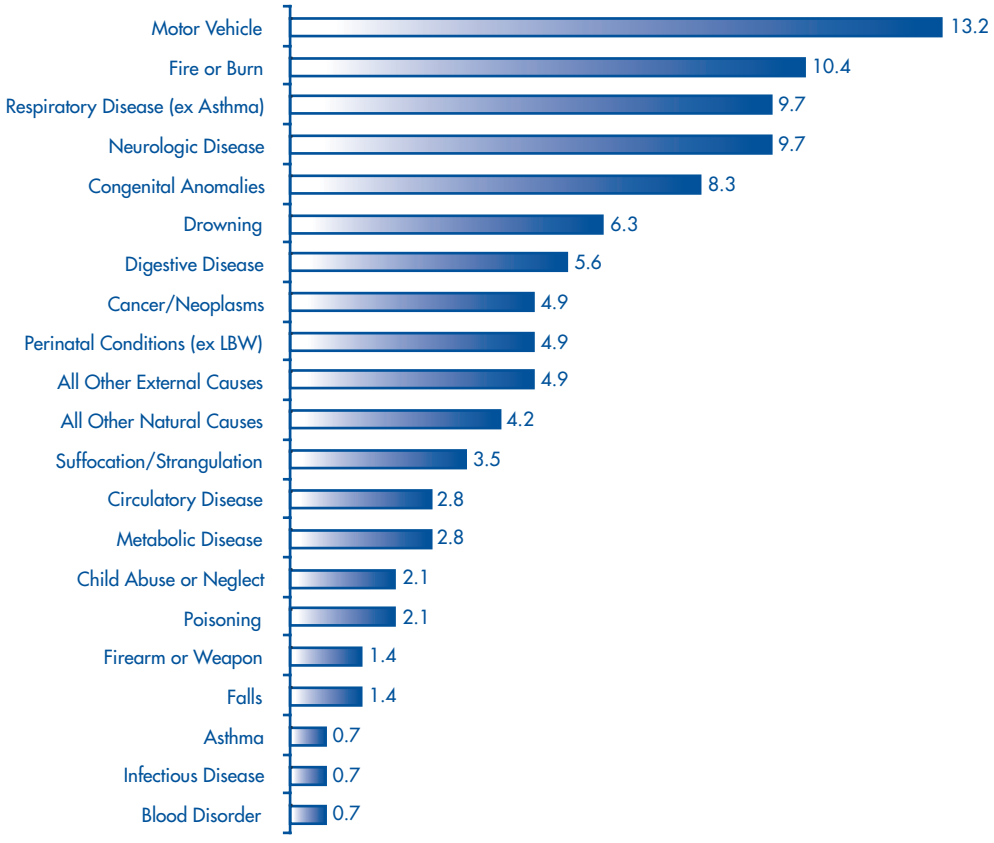


Figure 13
Michigan Child Deaths by Manner, Ages 5-9, 2003

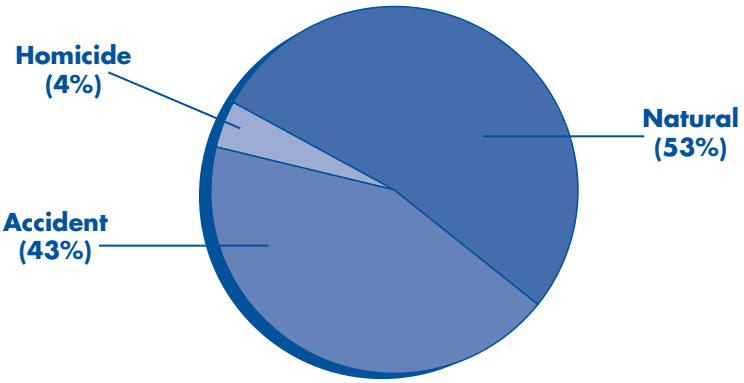


Figure 14
Percent Causes of Michigan Child Deaths, Ages 5-9, 2003

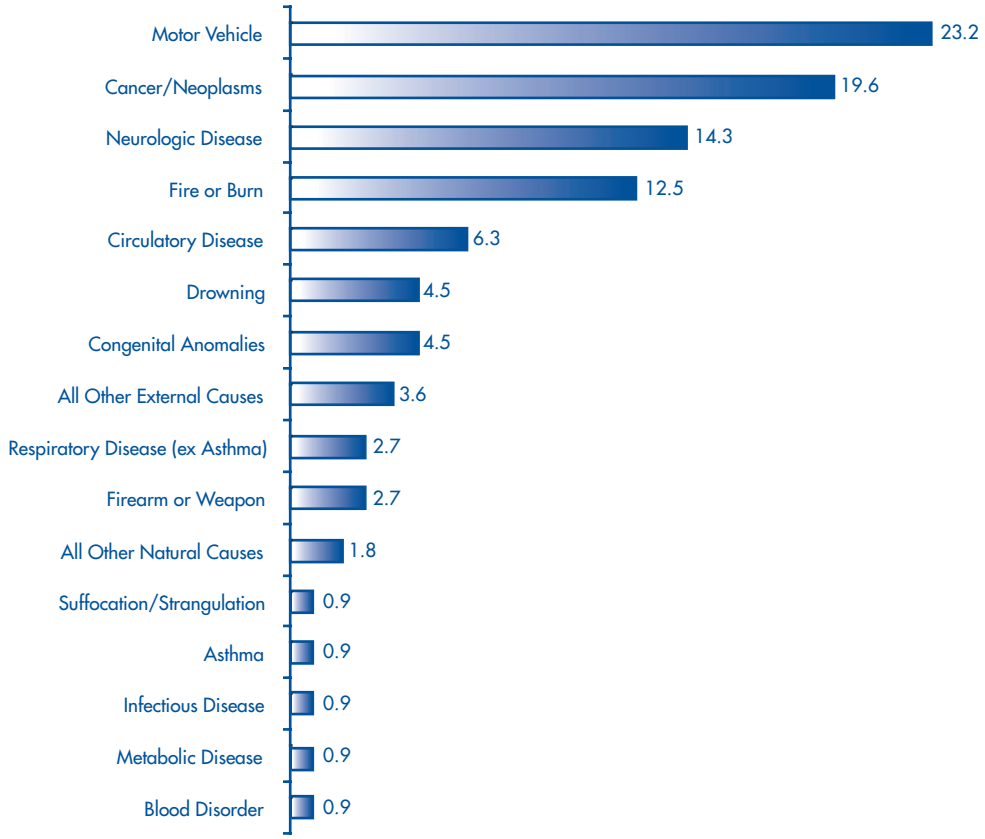


Figure 15
Michigan Child Deaths by Manner, Ages 10-14, 2003

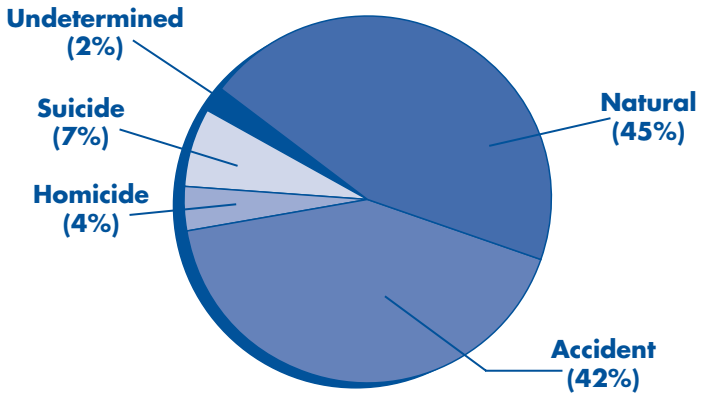


Figure 16
Percent Causes of Michigan Child Deaths, Ages 10-14, 2003

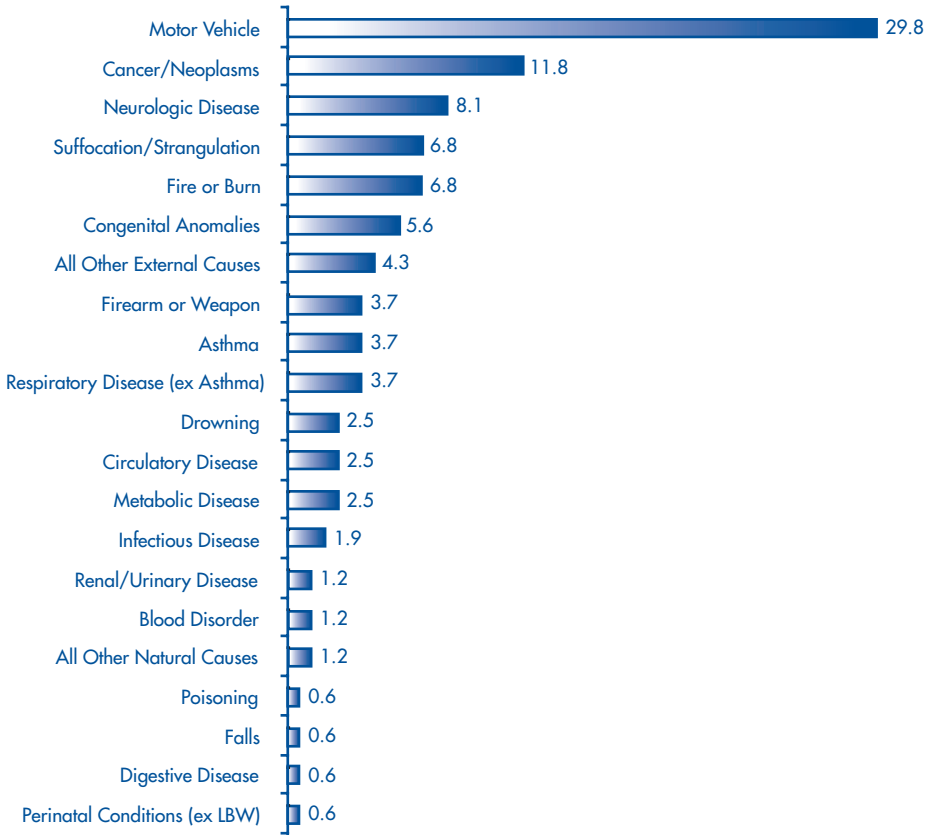


Figure 17
Michigan Child Deaths by Manner, Ages 15-18, 2003

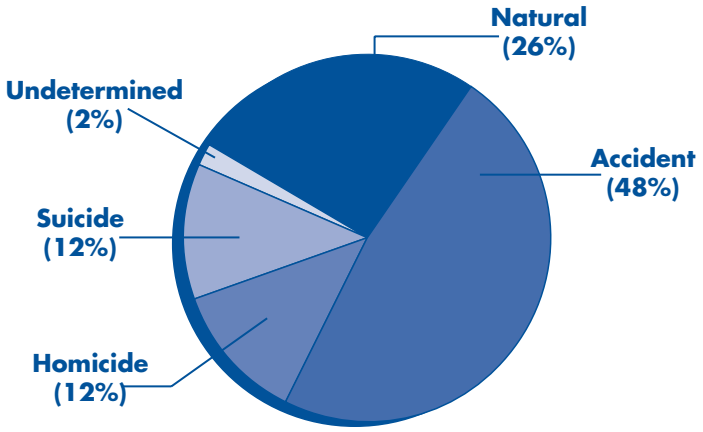
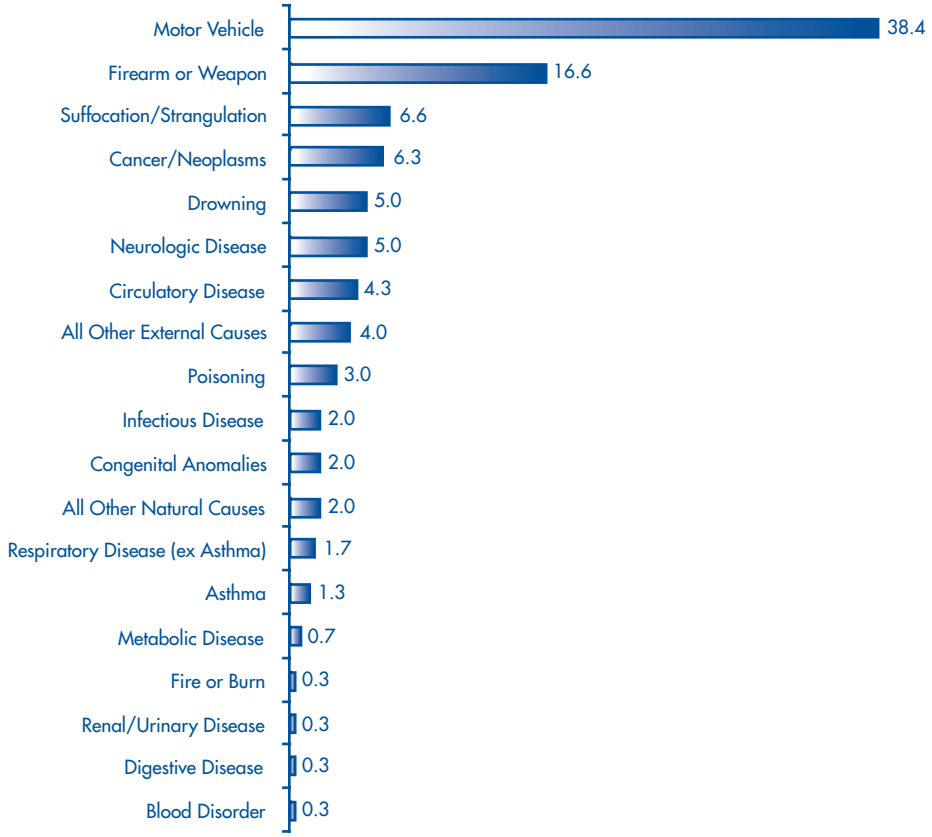


Figure 18
Percent Causes of Michigan Child Deaths, Ages 15-18, 2003



Michigan Child Death Review: Summary of 2002 and 2003 Findings

Since the inception of the Michigan CDR program, teams have reviewed more than 4,800 cases. This report covers over 1,700 cases reviewed in 2002 and 2003.

Table 14
Number of Child Death Reviews by Year

Year of Review	Number
1995	3
1996	130
1997	201
1998	492
1999	601
2000	807
2001	885
2002	899
2003	828
Total	**4,846**

Table 15
Number and Percent of Child Deaths Reviewed by Manner and Cause

Manner and Cause of Death	2002		2003	
	Number	Percent	Number	Percent
Natural	400	44.5	365	44.1
< 1 Year, excluding SIDS	217	24.1	213	25.7
> 1 Year, excluding SIDS	121	13.5	109	13.2
SIDS	62	6.9	43	5.2
Accident (Unintentional)	348	38.7	288	34.8
Motor Vehicle	185	20.6	152	18.4
Suffocation or Strangulation	67	7.5	50	6.0
Fire and Burn	35	3.9	36	4.3
Drowning	38	4.2	26	3.1
Firearm and Weapon	4	0.4	2	0.2
All Other Accidents	19	2.1	22	2.7
Homicide	58	6.5	77	9.3
Firearm and Weapon	29	3.2	47	5.7
Child Abuse and Neglect	20	2.2	22	2.6
All Other Homicides	9	1.0	8	1.0
Suicide	39	4.3	46	5.6
Firearm and Weapon	22	2.4	22	2.7
Suffocation or Strangulation	14	1.6	22	2.7
All Other Suicides	3	0.3	2	0.2
Undetermined	54	6.0	52	6.3
Total	**899**	**100.0**	**828**	**100.0**

Table 16
Number and Percent of Child Deaths Reviewed by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	570	63.4	527	63.6
Under One Year	237	26.4	204	24.6
1 to 4 Years	67	7.5	64	7.7
5 to 9 Years	36	4.0	36	4.3
10 to 14 Years	74	8.2	66	8.0
15 to 18 Years	148	16.5	153	18.5
19 to 21 Years	8	0.9	4	0.5
Female	328	36.5	301	36.3
Under One Year	169	18.8	148	17.9
1 to 4 Years	36	4.0	38	4.6
5 to 9 Years	25	2.8	26	3.1
10 to 14 Years	33	3.7	27	3.3
15 to 18 Years	63	7.0	57	6.9
19 to 21 Years	2	0.2	5	0.6
Unknown	1	0.1	0	0.0
Total	**899**	**100.0**	**828**	**100.0**

Table 17
Number and Percent of Child Deaths Reviewed by Race

Race	2002		2003	
	Number	Percent	Number	Percent
White	567	63.1	537	64.9
Black	278	30.9	244	29.5
American Indian	3	0.3	7	0.8
Asian / Pacific Islander	14	1.5	13	1.6
Multi-racial	29	3.2	25	3.0
Unknown	1	0.1	2	0.2
Total	**899**	**100.0**	**828**	**100.0**

Table 18
Number and Percent of Child Deaths Reviewed by Socio-Economic Status*

SES	2002		2003	
	Number	Percent	Number	Percent
High	15	1.7	15	1.8
Middle	269	29.9	254	30.7
Low	414	46.1	362	43.7
Unknown	201	22.4	197	23.8
Total	**899**	**100.0**	**828**	**100.0**

* A subjective item, determined by teams

Table 19
Number and Percent of Child Deaths Reviewed by Factors that Contributed to Death

Factors	2002		2003	
	Number	Percent	Number	Percent
Lack of Supervision	84	9.3	61	7.4
Alcohol	71	7.9	39	4.7
Drugs	44	4.9	35	4.2
Neglect	41	4.6	33	4.0
Child Abuse	27	3.0	20	2.4
Domestic Violence	15	1.7	19	2.3

Prior Child Protective Services (CPS) involvement with the family is a variable that is discussed in review meetings. Teams found that there were a total of 396 (23%) cases in which the family was involved in CPS either at the time of death or any time previous to the death. In 238 (60%) of the CPS cases, the involvement was with the child. In 117 (30%) of the CPS cases, there was prior contact with another family member. The point of contact was unknown in the remaining CPS cases.

Table 20
Number and Percent of Preventable Deaths Reviewed by Manner and Cause

Manner and Cause of Death	2002		2003	
	Number	Percent	Number	Percent
Natural	61	15.3	61	16.7
< 1 Year, excluding SIDS	19	8.8	24	11.3
> 1 Year, excluding SIDS	15	12.4	21	19.3
SIDS	27	43.5	16	37.2
Accident (Unintentional)	328	94.3	260	90.3
Motor Vehicle	174	94.1	141	92.8
Suffocation or Strangulation	62	92.5	46	92.0
Fire and Burn	32	91.4	33	91.7
Drowning	37	97.4	23	88.5
Firearm and Weapon	4	100.0	2	100.0
All Other Accidents	19	100.0	15	68.2
Homicide	53	91.4	61	79.2
Firearm and Weapon	26	89.7	35	74.5
Child Abuse and Neglect	19	95.0	21	95.5
All Other Homicides	8	88.9	5	62.5
Suicide	23	59.0	32	69.6
Firearm and Weapon	14	63.6	16	72.7
Suffocation or Strangulation	6	42.9	16	72.7
All Other Suicides	3	100.0	0	0.0
Undetermined	37	68.5	37	71.2
Total	**502**	**55.8**	**451**	**54.5**

Michigan's CDR program operates on a model that is focused on obtaining information that will drive prevention efforts. A death is deemed preventable if an individual or group could reasonably have done something that would have changed the circumstances leading to the death. Local teams found that over 50% of all the deaths reviewed in 2002 and 2003 were preventable.

Table 21
Number and Percent of Preventable Deaths Reviewed by Age of Child

Age Group	2002		2003	
	Number	Percent	Number	Percent
Under One Year	156	38.3	119	33.8
1 to 4 Years	60	58.3	63	61.8
5 to 9 Years	35	57.4	42	67.7
10 to 14 Years	71	66.4	62	66.7
15 to 18 Years	171	81.0	157	74.8
19 to 21 Years	9	90.0	8	88.9
Total	**502**	**55.8**	**451**	**54.5**

Teams more readily identify the deaths of older children and teens as being preventable.

Table 22
Number of Prevention Actions Proposed and Initiated by Teams

Action	2002		2003		1995–2003*	
	Proposed	Initiated	Proposed	Initiated	Proposed	Initiated
Advocacy	18	5	18	6	83	36
Legislation, Law or Ordinance	12	4	9	0	88	35
Community Safety Project	38	14	27	13	223	99
Product Safety Action	9	3	3	0	42	23
Education in Schools	39	22	62	36	303	170
Education through the Media	95	63	113	81	480	312
Public Forums	5	5	35	28	86	56
New Services	3	2	2	1	44	21
Change in Agency Practice	34	15	29	10	170	61
Other Program or Activity	38	13	29	18	248	122
Total	**291**	**146**	**327**	**193**	**1,767**	**935**

* CDR teams began reporting advocacy actions in 1999.

A total of 618 prevention actions were proposed as a result of team reviews in 2002 and 2003. At the time of this report, 339 (55%) of them were known to have been initiated.


Keeping
Kids
Alive©

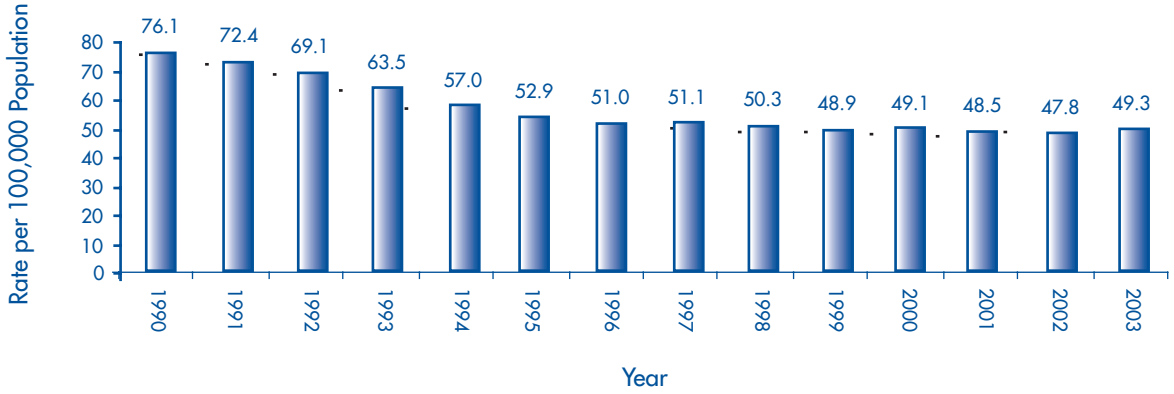
Child Deaths
IN MICHIGAN
section four

Natural DEATHS

Overview of Natural Child Deaths, Ages 0-18

Michigan Mortality Data from Death Certificates

Figure 19
Michigan Natural Child Death Rates, Ages 0-18, 1990-2003

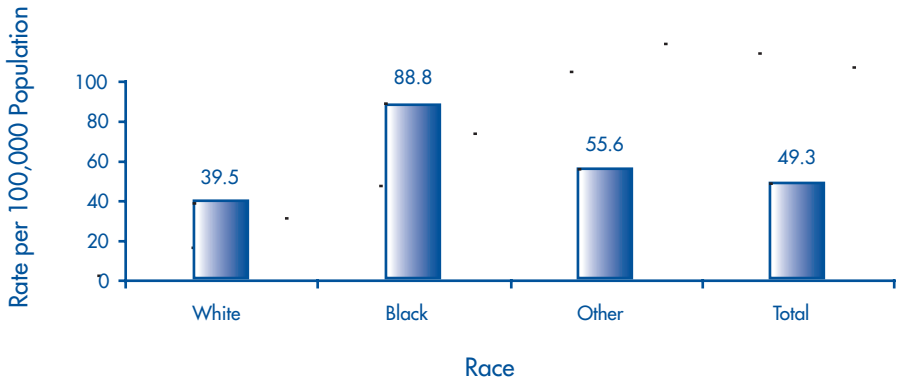


Note: The rate of 47.8 in 2002 represents 1,292 deaths; the 49.3 in 2003 represents 1,325 deaths.

Table 23
Number and Percent of Michigan Natural Child Deaths by Sex and Age, Ages 0-18

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	715	55.3	758	57.2
Under One Year	527	40.8	593	44.8
1 to 4 Years	52	4.0	45	3.4
5 to 9 Years	36	2.8	29	2.2
10 to 14 Years	44	3.4	39	2.9
15 to 18 Years	56	4.3	52	3.9
Female	574	44.4	566	42.7
Under One Year	438	33.9	443	33.4
1 to 4 Years	33	2.6	34	2.6
5 to 9 Years	32	2.5	29	2.2
10 to 14 Years	29	2.2	33	2.5
15 to 18 Years	42	3.3	27	2.0
Unknown	3	0.3	1	0.1
Total	**1292**	**100.0**	**1325**	**100.0**

Figure 20
Michigan Natural Child Death Rates by Race, Ages 0-18, 2003



Natural Infant Deaths Excluding SIDS, Ages 0-1

Background

Prematurity and low birth weight continue to be the greatest predictors of infant mortality. Preterm refers to births occurring before the 37th week of pregnancy, and low birth weight infants are those weighing less than 2500 grams or 5 $^{1/2}$ pounds at birth. While vast improvements have been made in treating these infants, preventing babies from being born too early and too small is still a great challenge.

In 2002, there were 15,510 preterm births in Michigan, representing 11.9% of all live births. Between 1992 and 2002, the rate of infants born preterm in Michigan increased more than 10%. The rate of preterm birth in Michigan is highest for black infants (18.4%), followed by Native Americans (12.5%), Hispanics (11.0%), whites (10.3%) and Asians (9.2%). Compared with singleton births (one baby), multiple births (twins, triplets and higher) in Michigan were about six times as likely to be preterm in 2002.

There are still many gaps in our understanding of why some women go into labor well ahead of schedule. Risk factors for preterm birth and low birth weight include: previous preterm birth and/or low birth weight infant, multiple birth, smoking, unplanned pregnancy and poor nutrition. Certain pregnancy complications such as high blood pressure and diabetes increase the risk of prematurity. Other significant risks are genital tract infections (including sexually transmitted diseases), stress, anxiety, depression and other psychological factors. Recent studies are looking at the long-term effects of stress over time and even inter-generational factors contributing to preterm delivery and low birth weight.

Preconception care helps to ensure that a woman is in optimal health before getting pregnant. Attention to nutrition, healthy weight and use of tobacco, alcohol and drugs improves the chance for a healthy birth outcome. Early access to quality prenatal care, including health promotion, risk assessment and appropriate interventions can also have an impact on preventing preterm births and increase the odds for an infant having normal birth weight.

According to the 2000 Pregnancy Risk Assessment Monitoring (PRAMS) data, the overall prevalence of unintended pregnancies in Michigan was 41%. For births to mothers on Medicaid, this rises to 66%. Unintended pregnancy rates are highest for black women, teens between the ages of 13 – 17 years, women with less than a high school diploma, unmarried women and women with an annual household income of $10,000 or less.

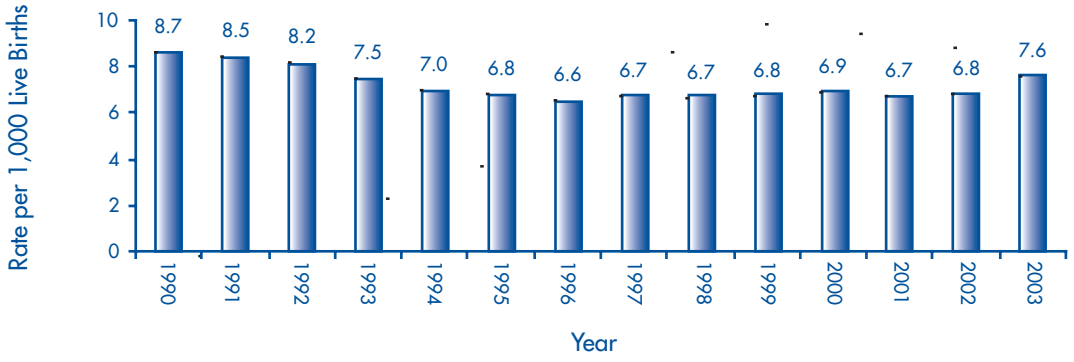
If a pregnancy is unintended and unwanted, the mother is more likely to seek prenatal care late in pregnancy, or not at all. She is more likely to expose the fetus to harmful substances such as tobacco, alcohol or illegal drugs. Women who are not committed to the pregnancy are less likely to alter behavior or follow their provider's advice, thus increasing the risk of a premature or low birth weight infant.

Major Risk Factors

- Unintended or unwanted pregnancy
- Less than adequate prenatal care
- Smoking and substance use during pregnancy
- First birth as a teen and maternal age under 20 or over 40
- Physical abuse or other serious stress during pregnancy
- Poverty

Michigan Mortality Data from Death Certificates

Figure 21
Michigan Natural Infant Death Rates Excluding SIDS, Ages 0-1, 1990-2003



Note: The rate of 6.8 in 2002 represents 883 deaths; the 7.6 in 2003 represents 987 deaths.

Table 24
Number and Percent of Michigan Natural Infant Deaths Excluding SIDS by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	481	54.5	563	57.0
0 to 23 Hours after Birth	250	28.3	259	26.2
24 to 47 Hours after Birth	24	2.7	62	6.3
48 Hours to 1 Month	131	14.8	166	16.8
2 Months to 5 Months	52	5.9	54	5.5
6 Months to 1 Year	24	2.7	22	2.2
Female	399	45.2	424	43.0
0 to 23 Hours after Birth	213	24.1	227	23.0
24 to 47 Hours after Birth	31	3.5	26	2.6
48 Hours to 1 Month	109	12.3	106	10.7
2 Months to 5 Months	33	3.7	46	4.7
6 Months to 1 Year	13	1.5	19	1.9
Unknown	3	0.3	0	0.0
Total	**883**	**100.0**	**987**	**100.0**

Figure 22
Michigan Natural Infant Death Rates Excluding SIDS by Race, Ages 0-1, 2003

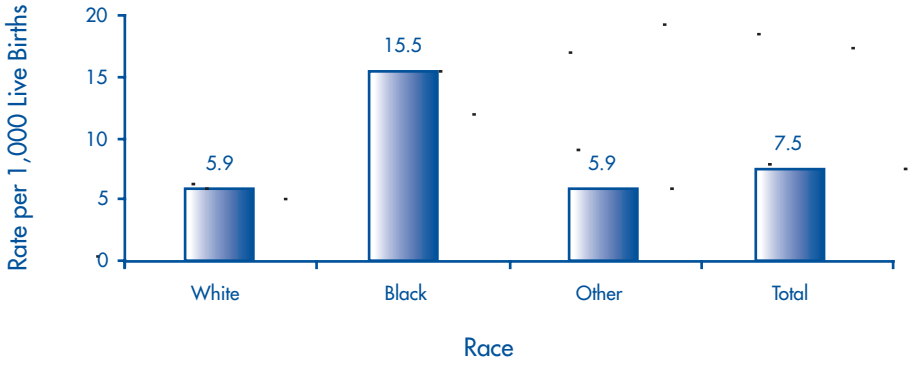


Table 25
Number and Percent of Natural Infant Deaths Reviewed by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	131	60.4	130	61.3
0 to 23 Hours after Birth	60	27.7	55	25.9
24 to 47 Hours after Birth	4	1.8	7	3.3
48 Hours to 5 Weeks	31	14.3	28	13.2
6 Weeks to 5 Months	28	12.9	33	15.6
6 Months to 1 Year	8	3.7	7	3.3
Female	85	39.2	82	38.7
0 to 23 Hours after Birth	34	15.7	34	16.0
24 to 47 Hours after Birth	1	0.5	5	2.4
48 Hours to 5 Weeks	26	12.0	23	10.8
6 Weeks to 5 Months	13	6.0	17	8.0
6 Months to 1 Year	11	5.1	3	1.4
Unknown	1	0.5	0	0.0
Total	**217**	**100.0**	**212**	**100.0**

Teams found that nearly 40% of the babies who died were born under 1500 grams, which is considered very low birth weight.

Table 26
Number and Percent of Natural Infant Deaths Reviewed by Age of Mother

Age of Mother	2002		2003	
	Number	Percent	Number	Percent
Under 15 Years	1	0.5	1	0.5
15 to 19 Years	25	11.5	20	9.4
20 to 24 Years	40	18.4	45	21.2
25 to 29 Years	24	11.1	35	16.5
30 to 34 Years	21	9.7	29	13.7
35 to 39 Years	17	7.8	11	5.5
40 Years and Older	5	2.3	2	0.9
Unknown	84	38.7	69	32.5
Total	**217**	**100.0**	**212**	**100.0**

When the information was available, teams found that 33% of the cases were determined to have medical complication during the pregnancy. In more than 16% of the cases, the mother had admitted to smoking during pregnancy.

In 152 cases (35%), teams reported that the mother entered prenatal care during the first trimester. In 14 cases, no prenatal care was received.

Prior CPS involvement or past CPS complaints* were found in 47 (11%) of the cases. In 36 cases, MDHS conducted an investigation and determined the referral to be unsubstantiated. In five cases, the complaint was substantiated. For the 47 cases with prior CPS involvement, 18 cases involved the child, 28 involved another family member, one was with a non-family caretaker and in three cases, this information was missing. MDHS family preservation services were in place with 11 of these families.

Maternal Support Services or Infant Support Services (MSS/ISS) were utilized in 23 cases. Families were enrolled in the WIC program in 55 of the cases reviewed.

In 27 of the cases, the baby was found in an unsafe sleep environment. The environments included bed-sharing, heavy bedding, breastfeeding position, adult bed, car seat and in a crib with other items such as stuffed animals.

Natural infant death was not seen by teams as being highly preventable. In only about 10% of the natural infant deaths excluding SIDS did the team believe the death was either probably or definitely preventable.

Local Initiatives to Prevent Child Deaths

Teams proposed 31 prevention activities and initiated 17 of these relating to natural infants deaths excluding SIDS. Examples of these initiatives include:

Alger – Recommend that the state facilitate MSS for all expectant moms and negotiate payments from companies to local health departments (or other MSS providers).

Berrien – Implemented FIMR team to address concerns about infant mortality rate.

Genesee – Identified need for appropriate communication between agencies when mother and baby have not been referred for MSS/ISS services. Also need for better coordination of outreach programs.

Grand Traverse – Medical examiner agreed to talk to other providers who work with pregnant women so that Healthy Futures is notified when something goes wrong with a pregnancy.

Iosco – Recommended that local hospital upgrade to include facilities for dealing with multiple births.

Isabella – Identified need for increased WIC outreach promotion to OB offices.

Saginaw – Proposed universal standards for drug screening, with consent to test on admission and referrals to professional substance counseling.

* The past CPS involvement refers to any time prior to the death. It may have been involvement with a parent when he or she was a child.

Recommendations for Policymakers

1. The Michigan Department of Community Health: Expand and continue technical and financial support to Fetal and Infant Mortality Review Programs in communities with high infant mortality rates and racial disparities.

2. The Michigan Department of Community Health: Promote the *Grief and Bereavement* service through the SIDS and Other Infant Death Program to medical examiners, hospitals, local public health departments, Fetal and Infant Mortality Review teams and local Child Death Review teams.

3. The Michigan Legislature: Continue to provide Medicaid coverage for family planning services to include all women up to 185% of the poverty level.

4. The Michigan Surgeon General: Work with medical practitioners, medical organizations and insurance companies to ensure:
   a. An increase in the number of providers that discuss pregnancy intendedness at every visit with all females of childbearing age.
   b. Providers offer preconception counseling to all females of childbearing age.
   c. Adequate number of providers that accept Medicaid patients, in reasonable proximity to those patient populations.
   d. Early access to and continuity of care for all pregnant females.
   e. Compliance with state laws that require physicians to offer pregnant females client-centered counseling and voluntary HIV testing.
   f. Screening for all pregnant females and new parents for domestic violence and substance abuse.
   g. Redesign of the Maternal Support Services and Infant Support Services programs to:
      - Improve identification and increase referrals of high risk persons;
      - Assure a quality assessment is performed;
      - Assure services are designed to specifically reduce risk; and
      - Design reimbursement to reinforce the likelihood of improved birth outcomes.
   h. Providers offer referrals to smoking cessation services for pregnant and new parents.

Recommendations for Parents and Caregivers

- If you think you are pregnant, see your health care provider early and often and follow their advice closely.
- If you are pregnant, do not smoke anything, drink alcohol or take recreational drugs.
- Learn about the warning signs for pre-term labor. If you experience any of them, call your doctor or health care provider right away.

Natural - Sudden Infant Death Syndrome

Background

Sudden Infant Death Syndrome (SIDS) is the sudden death of an infant under one year of age which remains unexplained after completion of a complete autopsy, examination of the death scene and review of the baby's health history. If any of these three steps are not conducted, a SIDS diagnosis should not be made. The SIDS diagnosis reflects that an infant's death remains completely unexplained.

Studies throughout the world have found that when infants are placed on their backs for sleep, they are much less likely to die of SIDS. In 1994, the American Academy of Pediatrics endorsed a nationwide *Back to Sleep* education campaign. In Michigan, Tomorrow's Child (known then as the Michigan SIDS Alliance) served as the lead organization for this campaign. Since then, SIDS deaths have been reduced by over 60% in Michigan.

Other risk factors are known to exist in SIDS deaths, including in-utero and second-hand tobacco exposure of the infant and overheating.

Better death scene investigations in the state are providing new insights by helping to identify risk factors. The more recent reductions in SIDS numbers in Michigan are due to a shift in diagnosis rather than an actual decrease in the number of deaths. As unsafe sleep environments are identified by investigation, many infant deaths that would have been called SIDS in past years are now classified as asphyxias or of undetermined cause.

These new insights have begun to move prevention strategies beyond the *Back to Sleep* campaign. MDCH, MDHS and Tomorrow's Child are currently working together to develop targeted messages about infant sleep environments.

Major Risk Factors

- Infants sleeping on their stomachs
- Soft infant sleep surfaces and loose bedding
- Infants that share a sleeping surface with other children or adults
- Not recognizing the protective factors of a safe crib as defined by Consumer Product Safety Commission
- Maternal smoking during pregnancy
- Second-hand smoke exposure
- Overheating
- Prematurity and/or low birth weight

Figure 23
Michigan SIDS Deaths, Ages 0-1, 1990-2003

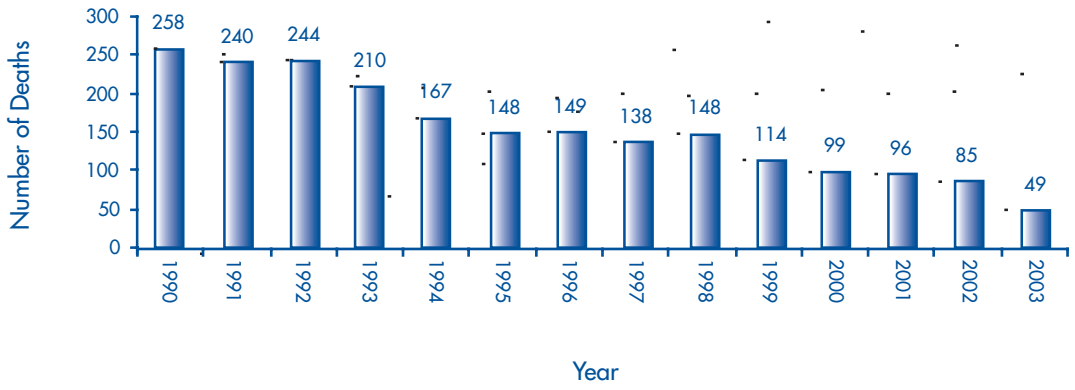
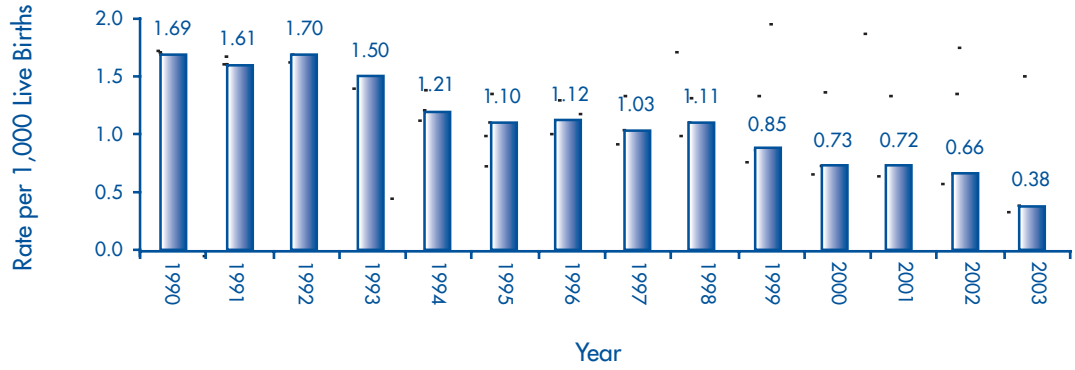


Figure 24
Michigan SIDS Death Rates, Ages 0-1, 1990-2003

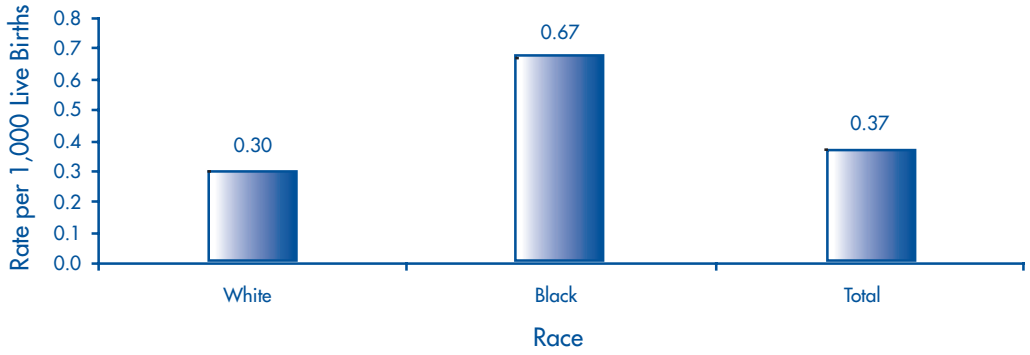


Note: The rate of 0.66 in 2002 represents 85 deaths; the 0.38 in 2003 represents 49 deaths.

Table 27
Number and Percent of Michigan SIDS Deaths by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	46	54.1	30	61.2
Under 2 Months	14	16.5	5	10.2
2 to 4 Months	13	15.3	12	24.5
4 to 6 Months	15	17.6	9	18.4
6 to 8 Months	3	3.5	4	8.2
8 to 12 Months	1	1.2	0	0.0
Female	39	45.9	19	38.8
Under 2 Months	13	15.3	7	14.3
2 to 4 Months	12	14.1	9	18.7
4 to 6 Months	8	9.4	1	2.0
6 to 8 Months	4	4.7	1	2.0
8 to 12 Months	2	2.4	1	2.0
Total	**85**	**100.0**	**49**	**100.0**

Figure 25
Michigan SIDS Death Rates by Race, Ages 0-1, 2003



Child Death Review Team Findings from CDR Case Reports

CDR teams reviewed 105 SIDS cases in 2002 and 2003. Sixty-seven percent were male and 33% were female. About 89% of these infants died before six months of age.

Table 28
Number and Percent of SIDS Deaths Reviewed by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	37	59.7	29	67.4
Under 2 Months	11	17.7	5	11.6
2 to 4 Months	15	24.2	10	23.3
4 to 6 Months	5	8.1	10	23.3
6 to 8 Months	4	6.5	4	9.3
8 to 12 Months	2	3.2	0	0.0
Female	25	40.3	14	32.6
Under 2 Months	5	8.1	9	20.9
2 to 4 Months	9	14.5	4	9.3
4 to 6 Months	9	14.5	1	2.3
6 to 8 Months	2	3.2	0	0.0
8 to 12 Months	0	0.0	0	0.0
Total	**62**	**100.0**	**43**	**100.0**

All of the 105 SIDS deaths were designated as medical examiner cases, with autopsies completed. Teams reported that in 96 of the cases, death scene investigations were conducted. In half of the cases, medical records were reported to have been reviewed by the medical examiner.

Table 29
Number and Percent of SIDS Deaths Reviewed by Infant's Sleeping Location when Found

Sleeping Location	2002		2003	
	Number	Percent	Number	Percent
Adult Bed	22	35.5	12	27.9
Crib	12	19.4	12	27.9
Couch	9	14.5	5	11.6
Playpen	5	8.1	1	2.3
Bassinet	3	4.8	3	7.0
Floor	2	3.2	1	2.3
Car Seat	1	1.6	3	7.0
On a Sleeping Adult	1	1.6	2	4.7
Other	5	8.1	4	9.3
Unknown	2	3.2	0	0.0
Total	**62**	**100.0**	**43**	**100.0**

Sleeping babies on their backs is the safest position. But because this fact has been known for some time, it may be that a diagnosis of SIDS (vs Suffocation) is now more likely to be made when infants are found on their backs vs on their stomachs.

Table 30
Number and Percent of SIDS Deaths Reviewed by Sleeping Position when Found

Sleeping Position	2002		2003	
	Number	Percent	Number	Percent
Stomach	27	43.5	15	34.9
Back	20	32.3	14	32.6
Side	5	8.1	8	18.6
Unknown	10	16.1	6	14.0
Total	**62**	**100.0**	**43**	**100.0**

Sleep Environment

A safe sleep environment is now known to be an important protective factor for infants. Research has proven that the safest place for a baby to sleep is in a crib on his or her back. Teams found that in only 23% of the SIDS cases was the baby sleeping in a crib when found. Only 32% of the babies were sleeping on their back when found. The nine "other" sleep locations include the following: waterbed, toddler bed, port-a-crib (2) bouncy seat (2), baby swing, recliner and a mattress on the floor.

In almost a third of the cases (34), the baby was found sleeping on an adult bed. Of these cases, 22 were also sleeping with another person. In nearly half the SIDS cases, the baby was in a sleep environment that contained heavy bedding. This included quilts and blankets. Exposure to cigarette smoke was found in just over half the cases.

In only eight of the 105 SIDS deaths reviewed was the baby sleeping in a crib, alone and on his or her back.

CDR teams believed that about 40% of the SIDS cases reviewed were either probably or definitely preventable.

Local Initiatives to Prevent Child Deaths

Teams proposed 50 prevention activities relating to SIDS and 40 of those were initiated. Examples of these include:

Antrim – Ongoing SIDS education to all pregnant women and new families seen through MSS/ISS at NWMCHA. Also a SIDS presentation in a local high school.

Arenac - Safe Sleep information implemented in community parenting class.

Barry - Discharge teaching to all new parents in OB department at local health system on the "Back to Sleep" program.

Isabella – Identified need for increased education regarding SIDS prevention.

Monroe – The Michigan State Police conducted training regarding best practices for investigators following a SIDS death.

Recommendations for Policymakers

1. The prosecuting attorney, law enforcement agencies, medical examiner and the Department of Human Services in every county: Upon the promulgation of rules by the Michigan Department of Community Health per Public Act 179 of 2004, jointly adopt and implement the child death scene investigation protocols.

2. The Children's Cabinet: Collaborate among member agencies and partner with the MDCH SIDS and Other Infant Death Program and Michigan professional associations to implement a statewide campaign promoting safe infant sleep environments consistent with the recommendations of the American Academy of Pediatrics.

3. The Michigan Department of Community Health: Strengthen the prenatal smoking cessation program, especially as it relates to Sudden Infant Death Syndrome.

Recommendations for Parents and Caregivers

- Always keep your baby in a smoke-free environment.
- Practice the recommendations from the Consumer Product Safety Commission (CPSC) for infant safe sleep environments:
  - Place your baby on his/her back on a firm, tight fitting mattress in a crib that meets current safety standards.
  - Remove pillows, quilts, comforters, sheepskins, stuffed toys and other soft products from the crib.
  - Use a sleep sack as an alternative to blankets, with no other covering.
  - If using a blanket, put your baby with feet at the foot of the crib. Tuck a thin blanket around the crib mattress, reaching only as far as your baby's chest.
  - Make sure your baby's head remains uncovered during sleep.
  - Do not place your baby on a waterbed, sofa, soft mattress, pillow, or other soft surface to sleep.
  - Do not sleep in the same bed as your baby.

Natural Child Deaths, Ages 1-18

Background

Death from natural causes is the second leading cause of mortality to children over one year of age, following unintentional injuries. Congenital anomalies, genetic disorders, cancers, heart and cerebral problems, serious infections and respiratory disorders such as asthma can all be fatal to children. Many of these conditions are not believed to be preventable in the same way in which accidents, homicides or suicides are preventable. But deaths due to certain illnesses do involve issues of preventability.

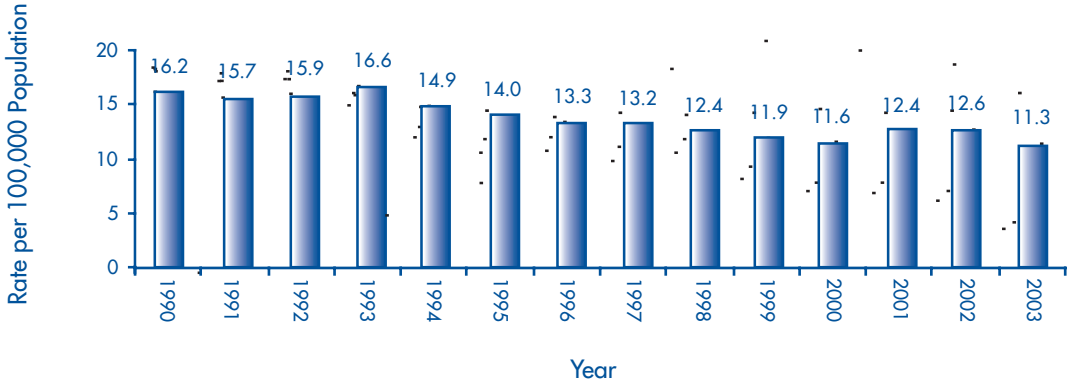
For example, deaths due to asthma are usually preventable. Asthma is a chronic respiratory disease that involves episodes of airway constriction due to inflammation. Asthma affects approximately five million children a year in the U.S. The asthma death rate for children 19 years and younger increased by 78% between 1980 and 1993. Despite these statistics, treatments for asthma are numerous and generally very effective. The Michigan Asthma Coalition is working to improve the diagnosis and treatment of children with asthma by conducting in-depth case reviews of child asthma fatalities.

Major Risk Factors

- Children with congenital anomalies and other genetic disorders
- Children who do not receive regular preventive medical care
- Children who live in poverty

Michigan Mortality Data from Death Certificates

Figure 26
Michigan Natural Child Death Rates, Ages 1-18, 1990-2003

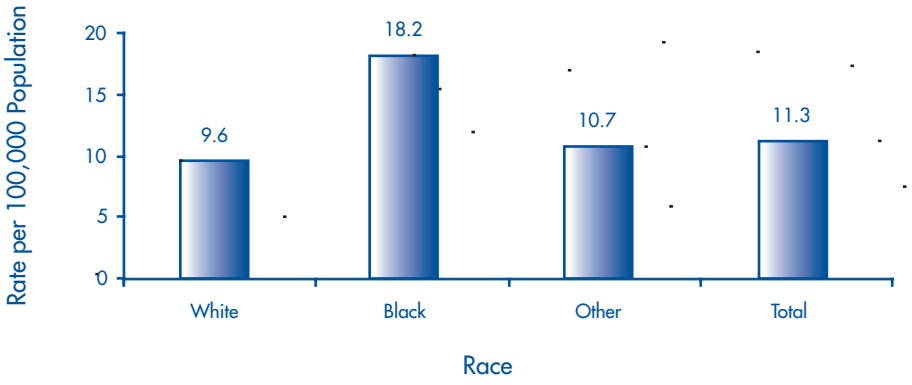


Note: The rate of 12.6 in 2002 represents 324 deaths; the 11.3 in 2003 represents 289 deaths.

Table 31
Number and Percent of Michigan Natural Child Deaths by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	188	58.0	165	57.1
1 to 4 Years	52	16.0	45	15.6
5 to 9 Years	36	11.1	29	10.0
10 to 14 Years	44	13.6	39	13.5
15 to 18 Years	56	17.3	52	18.0
Female	136	42.0	123	42.6
1 to 4 Years	33	10.2	34	11.8
5 to 9 Years	32	9.9	29	10.0
10 to 14 Years	29	9.0	33	11.4
15 to 18 Years	42	13.0	27	9.3
Unknown	0	0.0	1	0.3
Total	**324**	**100.0**	**289**	**100.0**

Figure 27
Michigan Natural Child Death Rates by Race, Ages 1-18, 2003



Child Death Review Team Findings from CDR Case Reports

CDR teams reviewed 230 cases of natural death to children over the age of one in 2002 and 2003. Nearly one third of these were children between one and four years of age.

Table 32
Number and Percent of Natural Child Deaths Reviewed by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	69	57.0	68	62.4
1 to 4 Years	20	16.5	20	18.3
5 to 9 Years	11	9.1	11	10.1
10 to 14 Years	20	16.5	19	17.4
15 to 18 Years	18	14.9	18	16.5
Female	52	43.0	41	37.6
1 to 4 Years	15	12.4	16	14.7
5 to 9 Years	13	10.7	7	6.4
10 to 14 Years	14	11.6	8	7.3
15 to 18 Years	10	8.3	10	9.2
Total	**121**	**100.0**	**109**	**100.0**

Table 33
Number and Percent of Natural Child Deaths Reviewed by Underlying Cause

Cause	2002		2003	
	Number	Percent	Number	Percent
Respiratory / Asthma	14	11.6	28	25.7
Congenital Anomalies	20	16.5	12	11.0
Cerebral	13	10.7	18	16.5
Cardiac	12	9.9	19	17.4
Cancer / Neoplasm	11	9.1	16	14.7
Infectious Illness	6	5.0	11	10.1
Other	58	47.9	26	23.9

CPS was involved at the time of the death or had been involved with the family in the past in 38 of the 230 cases. In 29 of these 38 cases, the involvement was with the child who died. In 10 of the 38 cases, the team felt that neglect on the part of the parent or caregiver contributed to the severity of the child's medical condition and subsequent death. The causes of death in those 10 cases were: Asthma (3), Cerebral Palsy (2), Meningitis (2), Bronchiolitis, Diabetes and Sickle Cell Anemia.

There were 23 deaths reviewed that were due to asthma. Thirteen percent of these children were ages 1-4, 13% were ages 5-9, 52% were ages 10-14 and 22% were ages 15-18. Fifteen were black, seven were white and one was American Indian. For the youngest of these children (12 months old), the asthma had not been diagnosed previously. Of the remainder, the teams identified issues of compliance with medical treatments for the child in eight of the cases. In two of those cases, it was known that at least part of the reason for the child not receiving the proper medications was financial or insurance-related.

The children were receiving Children's Special Health Care Services in 43 of the 230 cases of natural death (19%).

CDR Teams determined that about 16% of the natural deaths to children over one were either probably or definitely preventable.

Local Initiatives to Prevent Child Deaths

Teams proposed 31 prevention activities relating to natural deaths of children over one and 21 of those were initiated. Examples of these include:

Livingston – Held three Community/School informational meetings regarding an infectious illness. Local public health department's plan for dealing with this virus was updated.

Oakland – School changed their protocols after being contacted by CDR team members about lapse in response time after student's seizure.

Otsego – Using Human Service Collaborative Body to increase communication between doctors, DHS and public health on high-risk asthma kids.

Washtenaw – Medical Examiner agreed to present certain cases to the Pediatric groups as part of grand rounds in order to elicit ideas about medical management of children with similar symptoms.

Recommendation for Policymakers

1. The Michigan Department of Community Health and the Michigan Department of Human Services: Support a partnership and the sharing of information between the Michigan Child Death Review Program and the Michigan Asthma Coalition to improve the diagnosis, treatment and prevention of childhood asthma.

Recommendations for Parents and Caregivers

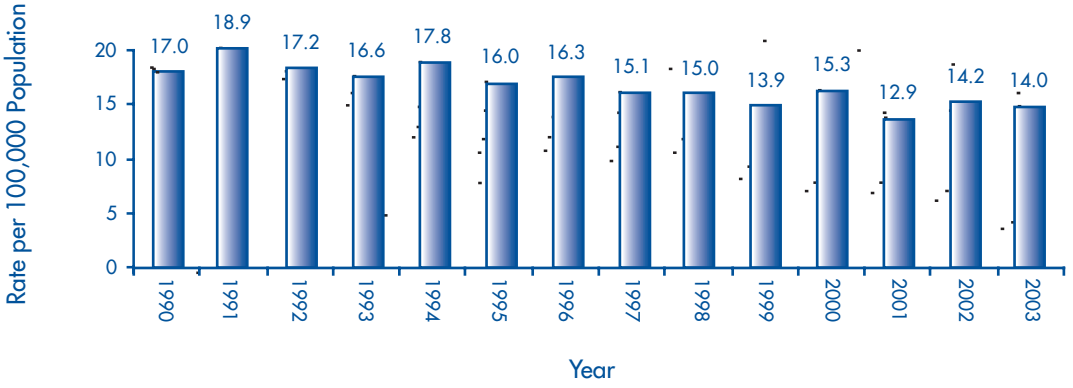
- Ensure that your children receive regular preventive medical care.
- Promptly seek medical care when you think your children need to see a doctor and make sure your children follow their treatment plans.

Child Deaths
IN MICHIGAN
section five

ACCIDENTS (Unintentional Injuries)

Overview of Accidental Child Deaths, Ages 0-18

Figure 28
Michigan Accidental Child Death Rates, Ages 0-18, 1990-2003

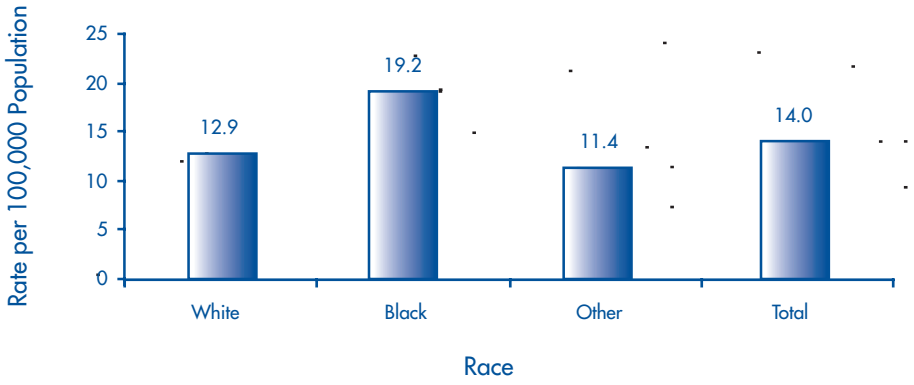


Note: The rate of 14.2 in 2002 represents 385 deaths; the 14.0 in 2003 represents 377 deaths.

Table 34
Number and Percent of Michigan Accidental Child Deaths by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	258	67.0	247	65.5
Under One Year	37	9.6	41	10.9
1 to 4 Years	33	8.6	31	8.2
5 to 9 Years	29	7.5	30	8.0
10 to 14 Years	52	13.5	42	11.1
15 to 18 Years	107	27.8	103	27.3
Female	127	33.0	129	34.2
Under One Year	35	9.1	24	6.4
1 to 4 Years	16	4.2	19	5.0
5 to 9 Years	13	3.4	18	4.8
10 to 14 Years	13	3.4	25	6.6
15 to 18 Years	50	13.0	43	11.4
Unknown	0	0.0	1	0.3
Total	**385**	**100.0**	**377**	**100.0**

Figure 29
Michigan Accidental Child Death Rates by Race, Ages 0-18, 2003



Accidental – Motor Vehicle

Background

Children Under 16

Proper child restraints are the key to preventing fatalities to children under 16 who ride in motor vehicles. Properly installed child safety seats reduce deaths by 70% for children under age one, and by 55% for toddlers ages 1-4.

Booster seats are especially important to prevent deaths in children ages 4-8. Using a booster seat with a seat belt instead of a seat belt alone reduces a child's risk of injury by 59% for children in this age group. Yet, according to a recent study conducted by the University of Michigan Transportation Research Institute, only 8.6% of Michigan children ages four to eight ride in booster seats. Children less than 4'9" tall and less than 80 pounds generally do not fit safely in seat belts. Booster seats raise a child's sitting height so that the lap belt fits across the tops of the thighs instead of the abdomen, and the shoulder strap fits across the collarbone instead of the neck. In trying to address the low level of booster seat usage, the National Highway Traffic Safety Administration (NHTSA) declared 2004 to be "The Year of the Booster Seat." They and the Ad Council provided child passenger safety advocates with the tools needed to launch awareness campaigns in their communities.

The rate of child death and injury on all-terrain vehicles (ATVs) in the U.S. has sky-rocketed in the last several years. According to the CPSC, between 1993 and 2002, serious ATV-related injuries to children under 16 more than doubled. During this same time period, children under 16 accounted for 37% of all injuries and 33% of all deaths on ATVs in the U.S.

Children Over 16

New teen drivers are at very high risk for causing motor vehicle crashes. According to NHTSA, teenagers are involved in three times as many fatal crashes as are all drivers, on the basis of miles driven. This difference is attributed to teens' inexperience behind the wheel, an increased likelihood of risk-taking behavior and a greater risk exposure.

The risk of injury or death greatly increases for teens when they ride in a car with a new teen driver. Two out of three teens who die as passengers are in vehicles driven by other teens. The young drivers in these situations are also at increased risk. One study found that 16-year-olds driving with one teen passenger were 39% more likely to get killed than those driving alone. This percentage increased to 86% with two and 182% with three or more teen passengers. The rates increased even more with 17-year-old drivers: 48% with one teen passenger, 158% with two and a 207% increase with three or more teen passengers. The study theorized that "general foolishness and distractions" increased with each additional teen passenger, which, when coupled with their inexperience, was responsible for these findings.

Major Risk Factors

Children Under 16

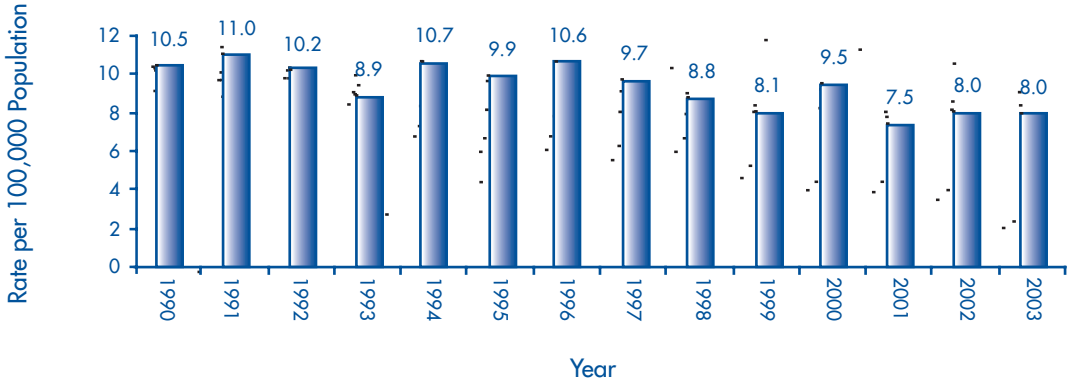
- Non-use/misuse of child restraints
- Not wearing helmets on motorcycles, bicycles and ATVs
- Unskilled and/or unsupervised drivers of off-road vehicles, including snowmobiles, jet skis, ATVs, go-carts and dirt bikes

Children Over 16

- New driver inexperience and/or recklessness
- New drivers with other teens as passengers
- Exceeding safe speeds for road conditions
- Not using seat belts
- Drinking and driving, or riding with someone who is under the influence of alcohol

Michigan Mortality Data from Death Certificates

Figure 30
Michigan Accidental Child Death Rates Due to Motor Vehicles, Ages 0-18, 1990-2003

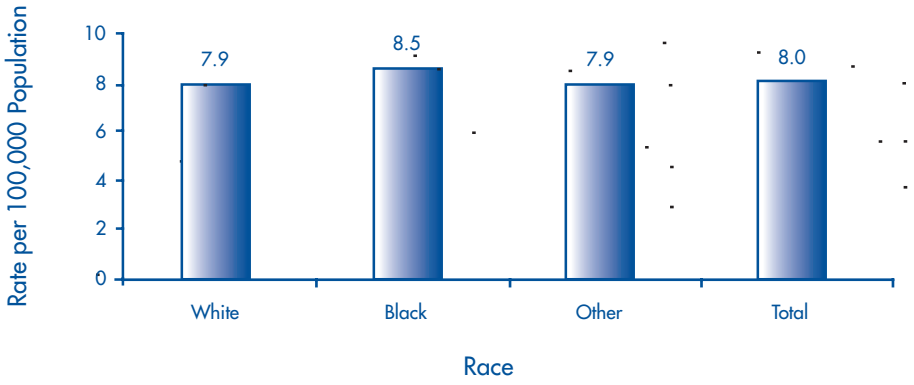


Note: The rate of 8.0 in 2002 represents 217 deaths; the 8.0 in 2003 represents 215 deaths.

Table 35
Number and Percent of Michigan Accidental Child Deaths Due to Motor Vehicles by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	146	67.3	133	61.9
Under One Year	6	2.8	2	0.9
1 to 4 Years	8	3.7	10	4.7
5 to 9 Years	12	5.5	15	7.0
10 to 14 Years	33	15.2	29	13.5
15 to 18 Years	87	40.1	77	35.8
Female	71	32.7	81	37.7
Under One Year	3	1.4	4	1.9
1 to 4 Years	6	2.8	8	3.7
5 to 9 Years	5	2.3	11	5.1
10 to 14 Years	10	4.6	19	8.8
15 to 18 Years	47	21.7	39	18.1
Unknown	0	0.0	1	0.4
Total	**217**	**100.0**	**215**	**100.0**

Figure 31
Michigan Accidental Child Death Rates Due to Motor Vehicles by Race, Ages 0-18, 2003



Child Death Review Team Findings from CDR Case Reports

Local teams reviewed 337 motor vehicle related deaths to children in 2002 and 2003. They found that boys were twice as likely to die in a crash as girls.

Table 36
Number and Percent of Accidental Motor Vehicle Deaths Reviewed by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	124	67.0	101	66.4
Under One Year	7	3.8	2	1.3
1 to 4 Years	7	3.8	11	7.2
5 to 9 Years	9	4.9	9	5.9
10 to 14 Years	28	15.1	23	15.1
15 to 18 Years	66	35.7	54	35.5
19 to 21 Years	7	3.8	2	1.3
Female	61	33.0	51	33.6
Under One Year	5	2.7	4	2.6
1 to 4 Years	9	4.9	4	2.6
5 to 9 Years	2	1.1	7	4.6
10 to 14 Years	10	5.4	10	6.6
15 to 18 Years	33	17.8	23	15.1
19 to 21 Years	2	1.1	3	2.0
Total	**185**	**100.0**	**152**	**100.0**

Table 37
Number and Percent of Accidental Motor Vehicle Deaths Reviewed by Cause of Crash

Cause	2002		2003	
	Number	Percent	Number	Percent
Driving Error	97	52.4	85	55.9
Speeding	55	29.7	41	27.0
Recklessness	42	22.7	22	14.5
Poor Weather	15	8.1	10	6.6
Mechanical Failure	2	1.1	1	0.7
Other	48	25.9	40	26.3

Table 38
Number and Percent of Accidental Motor Vehicle Deaths Reviewed by Age of Driver at Fault

Age of Driver at Fault	2002		2003	
	Number	Percent	Number	Percent
<16	9	4.9	15	9.9
16-18	67	36.2	59	38.8
19-21	23	12.4	12	7.9
22-35	28	15.1	15	9.9
36-59	21	11.4	15	9.9
>59	2	1.1	6	3.9
No Answer	35	18.9	30	19.7
Total	**185**	**100.0**	**152**	**100.0**

Teams found that drivers 16-18 years old were nearly three times as likely to be at fault in the fatal crashes reviewed than the next most frequent at-fault age group (22-35).

Table 39
Number and Percent of Accidental Motor Vehicle Deaths Reviewed for Drivers at Fault Aged 18 and Under by Number of Teen Passengers

Teen Passengers	2002		2003	
	Number	Percent	Number	Percent
One	22	28.9	17	23.0
Two	8	10.5	10	13.5
Three or More	8	10.5	11	14.9
None/Unknown	38	50.0	36	48.6
Total	**76**	**100.0**	**74**	**100.0**

One or more teen passengers were in the car for half of the fatalities reviewed in which the driver at fault was 18 years of age or under.

Table 40
Number and Percent of Accidental Motor Vehicle Deaths Reviewed by Position of Child

Position of Child	2002		2003	
	Number	Percent	Number	Percent
Passenger	73	39.5	66	43.4
Driver	59	31.9	53	34.9
Pedestrian	34	18.4	21	13.8
Bicyclist	8	4.3	6	3.9
Other	10	5.4	4	2.6
Unknown	1	0.5	2	1.3
Total	**185**	**100.0**	**152**	**100.0**

Five cases were reviewed of babies who died after being delivered subsequent to their mothers being involved in a motor vehicle crash. They died either due to the trauma sustained in the crash, or to prematurity from having been delivered too soon.

Of the 14 bicycle-related crashes, 13 children were known to have been not wearing a bike helmet at the time, and in the other case, this item was left unanswered. Helmet use was identified by teams as having been needed in 18 other cases: four of six children killed while on ATVs were not wearing helmets (one child that was killed by an ATV was a pedestrian); two of four child motorcyclists who were killed were not wearing helmets; one of three children who died on snowmobiles was not wearing a helmet; one of four children killed in go-carts was not wearing a helmet; and one child who was killed riding a moped was wearing a helmet.

Two of the eight children killed in ATV-related crashes were of the age group (12-15) that Michigan law (MCL 324.81129) requires to only operate an ATV while in visual supervision of an adult and in possession of a valid off-road vehicle safety certificate. Although there is no mention of safety certificates in any of the cases, neither of these children was within sight of a supervising adult. Two others were of the age group (under 10) that is not supposed to operate such a vehicle, except while performing farm related work operations. One of the two children (six years old) was driving the ATV for recreational purposes and in the other case, it is unclear why a five-year-old was driving the vehicle. It is believed that kids, parents and even some law enforcement jurisdictions are unfamiliar with the specifics of this state law, and that compliance and enforcement are both quite low.

Table 41
Number and Percent of Pedestrian Victims Reviewed by Age

Age of Child	2002		2003	
	Number	Percent	Number	Percent
1-4	7	20.6	8	38.1
5-9	4	11.8	4	19.0
10-14	11	32.4	6	28.6
15-18	12	35.3	3	14.3
Total	**34**	**100.0**	**21**	**100.0**

Children that are killed as pedestrians are not always toddlers and young children who dart out into traffic. Local teams found that 58% of the pedestrian deaths reviewed were to kids ages 10 and over.

Six of the 15 pedestrian deaths to kids ages 1-4 were "back-over" cases; that is, when a small child is run over by a vehicle, in or around a driveway.

Alcohol was noted to have been a factor in 20% of the crashes overall, and the teen driver or person driving the vehicle in which the child was killed was intoxicated in 14% of the motor vehicle crash cases reviewed.

Table 42
Number and Percent of Accidental Motor Vehicle Deaths Reviewed by Road Condition

Condition of Road	2002		2003	
	Number	Percent	Number	Percent
Normal	120	64.9	104	68.4
Wet	17	9.2	5	3.3
Ice or Snow	12	6.5	14	9.2
Loose Gravel	12	6.5	11	7.2
Fog	1	0.5	0	0.0
Construction	1	0.5	0	0.0
Unknown	22	11.9	18	11.8
Total	**185**	**100.0**	**152**	**100.0**

Some teams have identified a lack of experience driving in poor weather conditions and on gravel roads as being risk factors for new teen drivers. Teens tend not to get practice driving hours, whether with their parents or with their drivers education instructor, in such road conditions. Then when they are driving on their own and encounter a loss of traction in poor weather or on gravel, they often panic and overcorrect, causing rollover crashes and collisions with trees, both of which are very deadly types of crashes. Statewide review data supports this local finding. When weather conditions were noted: for normal road conditions, drivers less than 18 were at fault in 39% of the cases reviewed; in poor weather (ice/snow, wet or foggy), drivers less than 18 were at fault 59% of the time. Even more striking, when the crash occurred on gravel roads, drivers less than 18 were at fault 87% of the time. These findings have implications for local drivers education curricula, regarding the need for teens to receive specific instruction in this area and to experience more of these road conditions during driving practice.

Table 43
Number and Percent of Accidental Motor Vehicle Deaths Reviewed by Restraint Needed and Use of Restraint

Restraint Needed and Used	2002		2003	
	Number	Percent	Number	Percent
Seatbelt Needed	113	85.6	88	73.9
Used Correctly	44	33.3	36	30.3
Used Incorrectly	3	2.3	2	1.7
Present, but not Used	51	38.6	37	31.1
None in Vehicle	1	0.8	0	0.0
Unknown	14	10.6	13	10.9
Child Car Seat Needed	12	9.1	14	11.8
Used Correctly	5	3.8	6	5.0
Used Incorrectly	1	0.8	1	0.8
Present, but not Used	0	0.0	1	0.8
None in Vehicle	4	3.0	5	4.2
Unknown	2	1.5	1	0.8
No Answer	7	5.3	17	14.3
Total	**132**	**100.0**	**119**	**100.0**

The need for booster seat usage is vastly under-recognized. Even CDR teams did not always identify children who should have been using boosters. Child car seats were identified by teams as the type of restraint needed in 26 of the motor vehicle deaths reviewed. However, 56 of these children were of the recommended age (under eight years) to use child car seats, including boosters.

Motor vehicle related deaths were seen by teams as being highly preventable: they were judged to be either probably or definitely preventable in 96% of the cases reviewed.

Local Initiatives to Prevent Child Deaths

Teams proposed 145 prevention activities relating to motor vehicle crash deaths and 64 of those were initiated. Examples of these include:

Isabella – Team was influential in getting speed limit decreased to 25 mph (from 45 mph) in a school zone on the Saginaw Chippewa Reservation…The Road Commission is also currently observing two dangerous intersections we called them about…We have increased information to parents about appropriate car restraints through a variety of local programs, including local CTF agency…Identified need for increased safety education regarding ATVs and specific motor vehicle crash issues to local drivers ed instructors.

Monroe - At the Celebrate Children festival held in April, we had a local auto dealership display information about preventing back-over accidents. Also, following a child being hit chasing down a school bus, we advocated with the schools to encourage families to make advance plans for what their children should do if they miss the bus.

Oakland - Wrote letters to MDOT to advocate for guardrail at a dangerous curve and regarding narrowness/flatness of one median with the lack of a wall in between at a crash location.

Ontonagon - Have held discussion and researched a safety project about drinking and driving.

Tuscola - Our "Sign at the Scene Project" was implemented to raise awareness about child deaths that occurred at certain intersections. We had media, family members and friends present on the teen that died at the ground breaking of the first sign.

Recommendations for Policymakers

1. The Michigan Legislature: Amend the current graduated licensing law to place limits on the number of teen passengers allowed in vehicles driven by teens with Level Two Intermediate Licenses. This limitation should apply at all times of the day, and without an exception allowed for written parental permission.

2. The Michigan Department of State: Partner with the Office of Highway Safety Planning and the Michigan Department of Community Health to conduct a comprehensive review and revision of driver education programs throughout the state to ensure that the curricula adequately address all high-risk driving situations.

3. The Michigan Department of Education: Through the Great Parents, Great Start program, work with Michigan SAFE KIDS to develop a system for distributing child safety seat information to parents, coordinated through the local Intermediate School Districts.

4. The Michigan Legislature: Amend the Michigan Child Passenger law to:
   a. Require the use of booster seats to protect children ages 4-8 and under 4'9" tall;
   b. Increase fines and points for those not following the law; and
   c. Increase public awareness and education programs.

5. The Prosecuting Attorneys Association of Michigan: Educate all law enforcement agencies through the Police Law Bulletin, regarding Public Act 451 of 1994 (MCL 324, sections 81129 and 81130); specifically, regarding the restrictions on children younger than 16 in the operation of all off-road vehicles, and encourage the prosecution of cases wherein this law was violated.

Recommendations for Parents and Caregivers

- Put limits on the number of teen passengers allowed in a car with your teen.
- Ensure that you use the correct child restraint for your child's age and weight. Children ages four to eight generally should be in booster seats.
- Make sure all your children wear helmets when riding a bicycle or other recreational vehicle.
- Do not allow your children ages 10-15 to drive an ATV out of your sight or without having completed the DNR's Off-Road Vehicle (ORV) safety course. Do not let your children under age 10 drive ATVs.

Accidental – Suffocation and Strangulation

Background

Children can accidentally suffocate in a variety of ways. With each passing year, there are more reports of infant suffocations. According to the CDC, unintentional suffocation was the number one cause of fatal injury for children less than one year of age in 2001. Many of these occur when an infant is put to sleep in an unsafe sleep environment. Infants who suffocate often have no clinical findings at autopsy. A comprehensive scene investigation is usually the only way that unintentional suffocation can be determined.

One type of infant suffocation death is due to overlay. These are caused when an infant sleeps with adults or siblings (bed-sharing), and the other person inadvertently compromises the infant's breathing ability with their body.

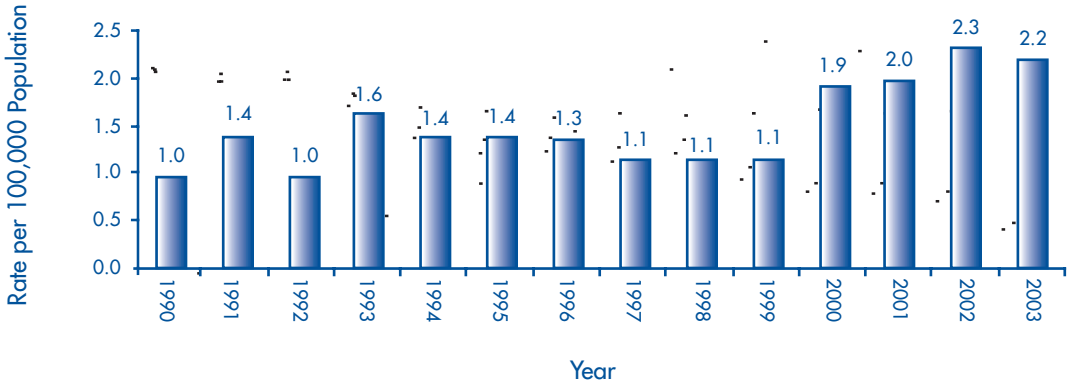
Suffocation in bedding occurs when infants sleep with soft or too much bedding (pillows, quilts, comforters) or when they sleep in locations other than cribs (waterbeds, couches, adult beds). Their faces can get covered or pressed into the soft bedding during sleep.

For choking and strangulation deaths, toddlers and preschoolers are at highest risk. Because they are mobile and often active, they can become entangled in cords or choke on small objects. Product safety improvements including rigorous scrutiny and recalls by the CPSC on toys with choking hazards, removal of drawstrings from children's clothing and safety cord hangers for window blinds have recently reduced the numbers of these types of suffocations and strangulations.

Major Risk Factors

- Infants sharing sleep surfaces with other persons
- Unsafe infant sleeping locations, such as adult beds, waterbeds, couches, futons
- Unsafe infant bedding, including poor-fitting or soft crib mattresses, pillows, stuffed toys, bumper pads, heavy or numerous blankets
- Easy access by infants and toddlers to small objects, cords and straps

Figure 32
Michigan Accidental Child Death Rates Due to Suffocation or Strangulation, Ages 0-18, 1990-2003

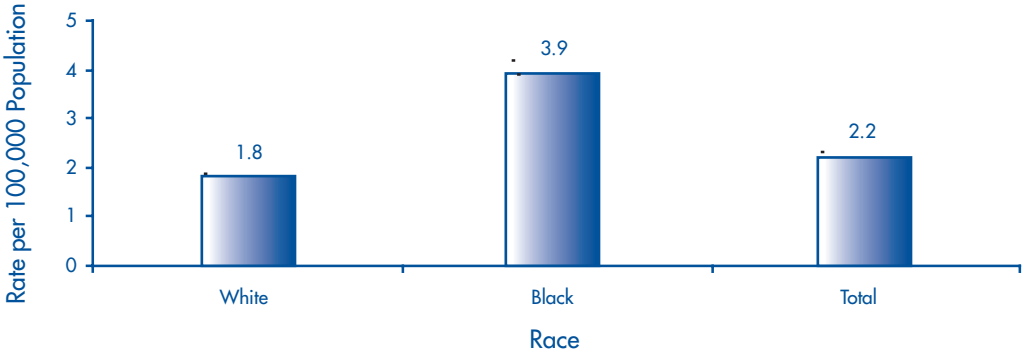


Note: The rate of 2.3 in 2002 represents 62 deaths; the 2.2 in 2003 represents 58 deaths.

Table 44
Number and Percent of Michigan Accidental Child Deaths Due to Suffocation or Strangulation by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	35	56.5	45	77.6
Under One Year	25	40.3	36	62.1
1 to 4 Years	4	6.5	3	5.2
5 to 9 Years	2	3.2	1	1.7
10 to 14 Years	3	4.8	2	3.4
15 to 18 Years	1	1.6	3	5.2
Female	27	43.5	13	22.4
Under One Year	25	40.3	13	22.4
1 to 4 Years	1	1.6	0	0.0
5 to 9 Years	1	1.6	0	0.0
10 to 14 Years	0	0.0	0	0.0
15 to 18 Years	0	0.0	0	0.0
Total	**62**	**100.0**	**58**	**100.0**

Figure 33
Michigan Accidental Child Death Rates Due to Suffocation or Strangulation by Race, Ages 0-18, 2003



Child Death Review Team Findings from CDR Case Reports

Local teams reviewed the deaths of 117 children due to unintentional suffocation or strangulation in 2002 and 2003. The vast majority of these deaths were to infants less than one year of age (85%).

Table 45
Number and Percent of Accidental Suffocation Deaths Reviewed by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	36	53.7	33	66.0
Under One Year	31	46.3	22	44.0
1 to 4 Years	3	4.5	4	8.0
5 to 9 Years	2	3.0	2	4.0
10 to 14 Years	0	0.0	3	6.0
15 to 18 Years	0	0.0	2	4.0
Female	31	46.3	17	34.0
Under One Year	29	43.3	17	34.0
1 to 4 Years	1	1.5	0	0.0
5 to 9 Years	1	1.5	0	0.0
10 to 14 Years	0	0.0	0	0.0
15 to 18 Years	0	0.0	0	0.0
Total	**67**	**100.0**	**50**	**100.0**

Although black children make up only 15% of the child population of Michigan, and 30% of the total deaths reviewed in 2002 and 2003, they made up 41% of the accidental suffocation deaths reviewed for this same time period.

Table 46
Number and Percent of Accidental Suffocation Deaths Reviewed by Circumstance

Circumstance	2002		2003	
	Number	Percent	Number	Percent
Overlay by Person while Sleeping	34	50.7	23	46.0
Suffocation in Bedding	13	19.4	9	18.0
Wedging between Objects	7	10.4	8	16.0
Strangulation by an Object	6	9.0	4	8.0
Falling into Object off Adult Bed	2	3.0	1	2.0
Choked on an Object	2	3.0	2	4.0
Other/Unknown Type of Suffocation	2	4.5	3	6.0
Total	**67**	**100.0**	**50**	**100.0**

Overlay by Person while Sleeping

Teams reviewed 57 cases where the child suffocated when another person rolled over onto them during sleep. Of these, most involved young infants: 23 were less than two months old, 26 were 2-6 months old, six were 7-11 months old and two were 12-20 months old.

Sleeping locations in these incidents were: 39 in adult beds, 10 on couches, three in reclining chairs, two on futons, one on an air mattress and in two cases, information about sleeping location was not given.

Of the 39 overlays that occurred in adult beds, there was an average of about two other persons on the same sleep surface as the baby at the time of death.

In 20 of the 57 total overlay deaths, the person who overlaid the child had been drinking alcohol and/or doing drugs before sleeping with the baby. In 28 of the 57, the teams also noted that the baby was in either heavy or soft bedding, or both.

Suffocation in Bedding

Twenty-two cases were reviewed in which infants suffocated in their bedding. Most of these babies (82%) were three months of age or younger. Nine were black and 13 were white.

Eight of the infants suffocated in pillows, seven in blankets, two in bumper pads, one in an overstuffed chair, one in a soft bassinet mattress, one in a broken port-a-crib mattress and one in a stuffed toy. In one case, the information about the type of bedding was not noted.

Infant bedding suffocations took place in cribs in 12 cases, in bassinets in three cases, on couches in two cases, in adult beds in two cases and in port-a-cribs in two cases. In one case, the location of the baby at the time of death was not noted.

Wedging

Fifteen children died when they became wedged between two objects, thereby restricting their ability to breathe. Twelve of these were cases of infants who became wedged in a sleeping environment. Of these 12, all were seven months old or younger. Two of the other three children who asphyxiated from wedging were 11 years old, the other was two years old.

In eight of the 12 infant sleeping cases, the babies were placed on adult beds and subsequently became wedged: five were found between the mattress and the wall, one between the mattress and the headboard, one on the floor between the bed and a table leg and one between two mattresses that had been pushed together. For the other four cases: one baby became wedged between a regular crib mattress and the port-a-crib it had been placed in, one was between the mattress and a bed rail, one between a sectional sofa and the wall and one between a couch and a baby gate. There had been other persons sleeping on the same surface as the baby in seven of these 12 deaths.

For the three older children, one became wedged between a boat and trailer, one in between two sets of elevator doors and one in a car entrance gate mechanism.

Strangulation

Teams reviewed 10 cases in which children were accidentally strangled. Four of the children were one year old or younger, one was two years old, one was eight years old, two were nine years old, one was 14 years old and one was 17 years old.

Of the four infant strangulations, two strangled in the straps of their car seats that were not attached to the car at the time and subsequently tipped over, one strangled on the strap of a "Johnny Jump-Up" seat that was not attached to a door frame at the time and one strangled on the cord of a monitor that had been placed in the crib with the baby.

Of the remaining six strangulations, two school-aged children became entangled in their jackets when they fell while climbing trees; two children had been playing around with sheets and bunk beds in separate incidents when they subsequently strangled; one toddler strangled when he tried to slip off a bunk bed under the railing; and one teenager unintentionally hung himself during an episode of autoerotic activity.

Other Types of Suffocation

Three infants fell off of adult beds on which they had been placed to sleep and subsequently suffocated in something that was on the floor. In two cases, the infants suffocated in plastic bags and in the other, it was a pile of clothes. Two were two months old and one was five months old.

Four children asphyxiated from choking on objects. They were two months old, six months old, one year old and three years old. The items choked on were milk from a bottle, a hot dog, food of unspecified type and medication.

Teams reviewed six suffocation cases that did not fit into any of the previous categories. Of these, their ages were: fifteen, nine, six, one, nine months and five months old. Two children asphyxiated when they accidentally displaced their tracheostomy tubes during sleep, one suffocated in a hot car, one in a pile of sand he was playing in and one suffocated in an infant swing. In one case, the team indicated that the death was to a seven-month-old, but did not provide any additional information.

Of all 117 suffocation and strangulation deaths reviewed, teams believed the deaths to be either probably or definitely preventable in 91% of the cases.

Local Initiatives to Prevent Child Deaths

Teams proposed 79 local prevention activities related to suffocation and strangulation, and 43 of these were initiated. Examples of these include:

Arenac - Safe sleep information was implemented in community parenting class.

Barry - Discharge teaching to all new parents in OB department at local hospital on "Back to Sleep" program.

Berrien – Working with infant mortality task force on back to sleep and bed-sharing training.

Kalamazoo – Holding community baby showers and continuing our very active local safe sleep campaign.

Oakland - Prosecuting attorney's office communicated to area law enforcement that blood alcohol levels should be taken on all infant deaths involving bed-sharing. Local health department provided safe sleep information along with other services to families who experienced infant suffocation deaths. Team submitted information to the Consumer Product Safety Commission to investigate a "3-in-1" port-a-crib where changing portion can be assembled upside down, increasing chance of suffocation.

Saginaw – We are meeting with our local hospital/doctor's offices who give OB or pediatric care to move toward a more uniform message of safe sleep. Staff from hospital and local health department are in the process of rewording the pamphlet on safe sleep given out at the hospital. Also doing community billboard campaign on safe sleep, and adding what to do for safe sleep when traveling and visiting relatives to our ongoing safe sleep campaign.

St Clair – Talked to local residential facility about providing cribs for their residents with infants. Also looking into what local hotels provide for cribs.

Wayne – Infant safe sleep environment educational activities at a local hospital.

Recommendations for Policymakers

1. The prosecuting attorney, law enforcement agencies, medical examiner and the Department of Human Services in every county: Upon the promulgation of rules by the Michigan Department of Community Health per Public Act 179 of 2004, jointly adopt and implement the child death scene investigation protocols.

2. The Children's Cabinet: Collaborate among member agencies and partner with the Michigan Department of Community Health's SIDS and Other Infant Death Program and Michigan professional associations to implement a statewide campaign promoting safe infant sleep environments consistent with the recommendations of the American Academy of Pediatrics.

3. The Michigan Chapter of the American Academy of Pediatrics: Identify a partner with whom to host a "Train the Trainer" event for pediatricians around the state in order to ensure the dissemination of consistent safe infant sleep messages to parents.

Recommendations for Parents and Caregivers

- Practice the recommendations from the Consumer Product Safety Commission (CPSC) for safe infant sleep environments. (See the Section on SIDS)
- Keep all small objects, cords and ropes away from infants and toddlers, including foods like hot dogs, nuts and grapes.
- Don't leave babies in car seats that are not attached to cars out of your sight.

Accidental – Fire

Background

Young children, especially males ages 0-4, are at the greatest risk of dying in a house fire. Children of this age are less likely to recognize the dangers of playing with fire, more likely to hide once a fire breaks out and less likely to have been taught home fire escape. Poverty increases this risk. This is due in part to lower income families being more likely to live in older, wood frame housing; less likely to have working smoke alarms; less likely to have a family escape plan and to practice it; more likely to use alternative heating sources; more likely to have malfunctioning wiring or appliances and more likely to have barriers to escape or rescue. These include having children's bedrooms in basements with small or no access windows, security bars on first floor windows and back doors or windows nailed shut for security or warmth.

A significant portion of the fires that result in child fatalities are started by children in the home playing with incendiary devices such as matches and lighters. Since the CPSC took action in 1994 to require that cigarette lighters be child-resistant, deaths caused by children playing with lighters have decreased by 43%.

The single most important factor in reducing fire fatalities is the presence in the home of a working smoke detector. Three-fifths of fire fatalities nationwide occur in the small number of homes (seven percent) that lack any detectors at all. Although most American homes have at least one smoke alarm, they may not contain good batteries or be in working order at the time of the fire.

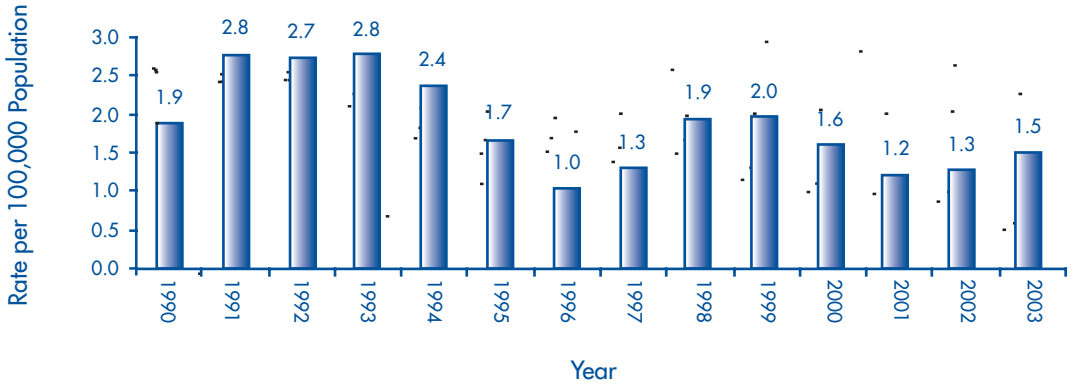
Learning the basics of home fire escape is another proven way to reduce fire fatality risk. Research shows that children, including preschoolers, are capable of learning life-saving means of home fire escape. In 2003, the National Fire Protection Association (NFPA) awarded 23 states grants up to $13,000 to implement Risk Watch, NFPA's successful child injury prevention curriculum, in local schools. A large part of this curriculum deals with fire safety, including age-appropriate lessons on home fire escape for preschool children through age eight. Ten of these states also participated in a program to distribute over 16,000 ten-year lithium battery-powered smoke alarms to high-risk areas.

Major Risk Factors

- Young children's easy access to lighters, matches and candles
- Homes without working smoke detectors
- Black and American Indian males
- Preschool aged children
- Children in low income housing

Michigan Mortality Data from Death Certificates

Figure 34
Michigan Accidental Child Death Rates Due to Fire and Burn, Ages 0-18, 1990-2003

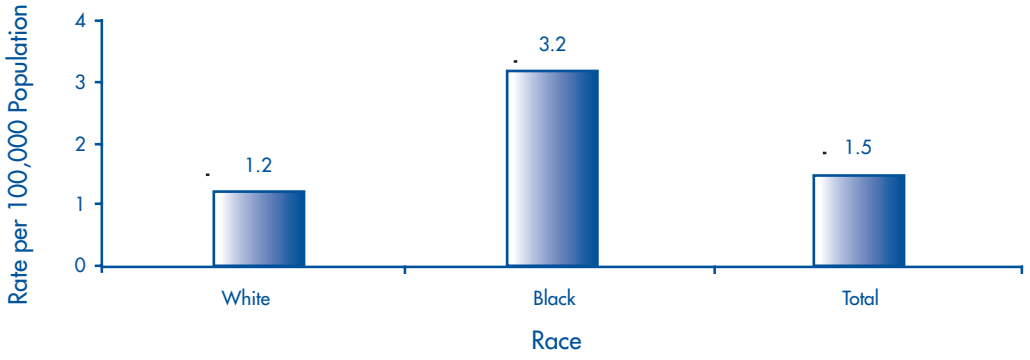


Note: The rate of 1.3 in 2002 represents 34 deaths; the 1.5 in 2003 represents 41 deaths.

Table 47
Number and Percent of Michigan Accidental Child Deaths Due to Fire and Burn by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	26	76.5	22	53.7
Under One Year	1	2.9	0	0.0
1 to 4 Years	10	29.4	7	17.1
5 to 9 Years	7	20.6	10	24.4
10 to 14 Years	7	20.6	5	12.2
15 to 18 Years	1	2.9	0	0.0
Female	8	23.5	19	46.3
Under One Year	1	2.9	1	2.4
1 to 4 Years	3	8.8	7	17.1
5 to 9 Years	3	8.8	4	9.8
10 to 14 Years	1	2.9	6	14.6
15 to 18 Years	0	0.0	1	2.4
Total	**34**	**100.0**	**41**	**100.0**

Figure 35
Michigan Accidental Child Death Rates Due to Fire and Burn by Race, Ages 0-18, 2003



Child Death Review Team Findings from CDR Case Reports

Teams reviewed the deaths of 71 children who were fire victims in 2002 and 2003. Teams found more deaths were to males than to females. Forty-four percent were four years old or less, with the largest category being white males ages one to four.

Table 48
Number and Percent of Accidental Fire Deaths Reviewed by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	25	71.4	21	58.3
Under One Year	1	2.9	0	0.0
1 to 4 Years	11	31.4	6	16.7
5 to 9 Years	6	17.1	8	22.2
10 to 14 Years	4	11.4	6	16.7
15 to 18 Years	3	8.6	1	2.8
Female	10	28.6	15	41.7
Under One Year	3	8.6	1	2.8
1 to 4 Years	1	2.9	8	22.2
5 to 9 Years	3	8.6	5	13.9
10 to 14 Years	3	8.6	0	0.0
15 to 18 Years	0	0.0	1	2.8
Total	**35**	**100.0**	**36**	**100.0**

Local teams determined the socio-economic status of the child fire victims to be "low" in 79% of the cases reviewed.

Table 49
Number and Percent of Accidental Fire Deaths Reviewed by Fire Source

Fire Source	2002		2003	
	Number	Percent	Number	Percent
Child Playing w/Lighter or Matches	10	28.6	5	13.9
Cooking (Stove)	9	25.7	7	19.4
Wiring/Christmas Lights	8	22.9	14	38.9
Gas Explosion	3	8.6	0	0.0
Other	3	8.6	4	11.1
Unknown	2	5.7	6	16.7
Total	**35**	**100.0**	**36**	**100.0**

Although not an item currently collected on the CDR case report form, it was noted in the narratives of five of the fire deaths reviewed that security bars on windows hindered victims' escape from the fire.

Although there appears to be a sharp increase in deaths caused by faulty wiring in 2003, the 14 deaths in that category were actually from only five separate fires. One wiring death killed seven children, one killed three children and another killed two children.

In all 16 cases involving cooking, it was reported by the teams that the person using the stove had been careless, either by falling asleep, leaving the kitchen for an extended period and/or being under the influence of alcohol at the time.

When answering whether they believed supervision to have been adequate at the time of the fire, the teams answered "no" or "unsure" in 61% of the 71 fire deaths reviewed.

In 12 of the 15 cases where children were known to have been playing with matches or lighters, lack of supervision was deemed as a contributing factor. In seven of these 15 cases, the child was previously known to be a fire setter.

The Department of Human Services conducted an investigation in 28% of the fire cases reviewed, substantiating for abuse or neglect in 45% of those. Most of these resulted in the provision of services, while two out of the nine substantiations involved removing other children from the home.

In nearly half the cases (35), it was noted that smoke alarms were present in the home at the time of the fire. However, in only nine cases did the alarms function properly. This was usually because the smoke alarms did not contain working batteries at the time.

Table 50
Number and Percent of Fire Deaths Reviewed by Smoke Alarm Functioned Properly

Smoke Alarm Functioning	2002		2003	
	Number	Percent	Number	Percent
Yes	2	5.7	7	19.4
No	25	71.4	27	75.0
No Answer	8	22.9	2	5.6
Total	**35**	**100.0**	**36**	**100.0**

As with the previous two types of accidental death, teams found child fire deaths to be highly preventable. They indicated that the death was either probably or definitely preventable in 90% of the 71 fire cases reviewed.

Local Initiatives to Prevent Child Deaths

Teams proposed 58 local prevention activities related to child fire deaths. Action was taken on 31 of these. Examples of these include:

Kalamazoo – Met with local housing inspectors to assist with developing methods to improve community response to situations such as families living in condemned homes. Discussed with DHS reps suggestion that vouchered rent be tied to regular inspection of dwellings. Local DHS staff will take idea to state for further discussion. Got information out in the media regarding need for smoke detectors and how to obtain them free from SAFE KIDS.

St. Clair - Have begun discussions with county emergency management regarding community education about smoke detectors and fire safety in homes.

Recommendations for Policymakers

1. The Michigan Department of Community Health, the Michigan State Police and the Michigan Department of Labor and Economic Growth: Campaign to promote local efforts to increase the number of lithium-powered or hard-wired smoke detectors and sprinkler systems in residential dwellings.

2. The Michigan Department of Education and the Michigan Department of Human Services: Ensure that all school districts and child care organizations offer fire safety education for young children, especially in preschool and child care settings.

Recommendations for Parents and Caregivers

- Install smoke detectors outside every sleeping area and on every floor of your home; test them monthly and keep fresh batteries in them if they are not hard-wired or equipped with 10-year lithium batteries.

- Keep matches, lighters and candles well out of the reach of children and teach your family how to escape from your home in case of a fire.

- Never leave your cooking unattended.

Accidental – Drowning

Background

According to the CDC, drowning remains the second leading cause of injury-related death among children ages 1 to 14 in the U.S., despite a continuing decrease in the child drowning rate over the years.

Males are at a much higher risk of drowning than females. One study found that on average, nearly three-quarters of all drowning victims are male. Toddlers, especially boys under age four, are at highest risk of drowning. Very young children are curious near water but are not able to comprehend the potential dangers. They often do not splash or call for help when they get into trouble in the water.

Most child drownings occur when a supervising adult is distracted. Also, if there are multiple adults in the area, a diffusion of responsibility can occur for watching the children. Drowning experts now recommend that one adult at a time take responsibility for maintaining constant visual supervision of children in or near the water.

Age plays a large role in determining the most likely place for children to drown. Babies most often drown in bathtubs or other areas in the home (toilets, five-gallon buckets, washtubs) when left unattended. Toddler drownings most often occur in swimming pools or backyard ponds. Often, young children who drown in pools were last seen inside the home or just outside of the home (not necessarily near the water), and had been out of sight of the caretaker for less than five minutes when it was discovered that they were missing. Older children most often drown in open bodies of water (lakes, rivers, oceans, gravel pits) while swimming, playing or boating.

A recent study by the National SAFE KIDS Campaign used data from 17 states conducting child death reviews, as well as surveying 564 parents of children 14 years old and younger. Among their conclusions were: parents are overconfident about their children's safety around water and their swimming abilities; multiple layers of protection must be installed around home pools and they must be used consistently; adults must increase the quality of their supervision of children around water (nearly 9 in 10 of the deaths reviewed occurred while the child was supposedly being supervised).

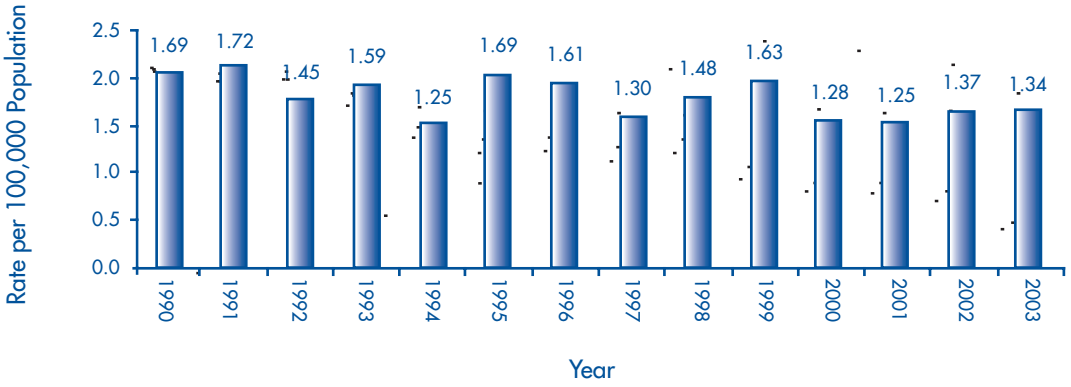
In Michigan, building codes require specifics for fencing around home pools. In recent years, the enforcement of these codes has fallen to localities, which rarely pursue this enforcement. They often point to a lack of resources and lack of code enforcement experience in their personnel as reasons why it is not actively pursued in their area.

Personal flotation devices (PFDs or life jackets) are very effective at preventing drowning for all ages, especially for children on boats or who are playing in or near open bodies of water, regardless of whether the child is thought to be a good swimmer.

Major Risk Factors

- Lapse in adult supervision, however brief
- Children under age four and males
- Unlocked gates and inadequate fencing of pools and ponds
- Children not wearing personal flotation devices

Figure 36
Michigan Accidental Child Death Rates Due to Drowning, Ages 0-18, 1990-2003

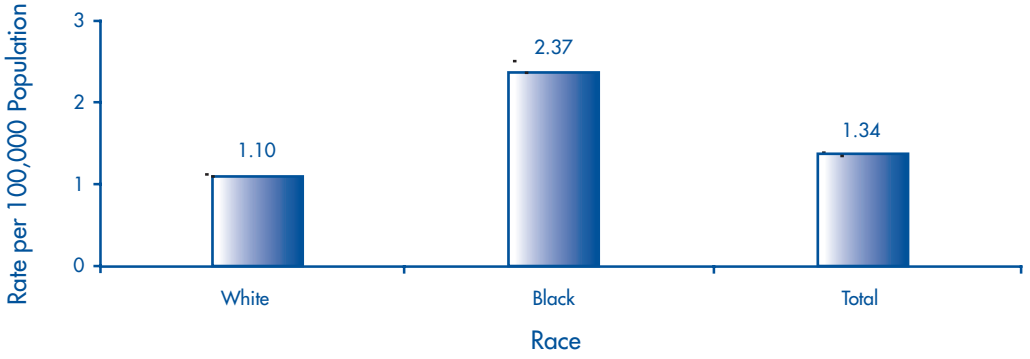


Note: The rate of 1.37 in 2002 represents 37 deaths; the 1.34 in 2003 represents 36 deaths.

Table 51
Number and Percent of Michigan Accidental Child Deaths Due to Drowning by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	29	78.4	26	72.2
Under One Year	2	5.4	0	0.0
1 to 4 Years	8	21.6	5	13.9
5 to 9 Years	7	18.9	3	8.3
10 to 14 Years	6	16.2	3	8.3
15 to 18 Years	6	16.2	15	41.7
Female	8	21.6	10	27.8
Under One Year	2	5.4	4	11.1
1 to 4 Years	4	10.8	4	11.1
5 to 9 Years	1	2.7	2	5.6
10 to 14 Years	1	2.7	0	0.0
15 to 18 Years	0	0.0	0	0.0
Total	**37**	**100.0**	**36**	**100.0**

Figure 37
Michigan Accidental Child Death Rates Due to Drowning by Race, Ages 0-18, 2003



Child Death Review Team Findings from CDR Case Reports

Local teams reviewed 64 child drownings in 2002 and 2003. They found an increased risk for male children, who accounted for 80% of the drowning deaths reviewed. Children ages one to four were found, as they are nationally, to be at increased risk. But local teams also reported an equally increased risk for youths ages 15-18.

Table 52
Number and Percent of Accidental Drowning Deaths Reviewed by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	31	81.6	20	76.9
Under One Year	3	7.9	1	3.8
1 to 4 Years	8	21.1	6	23.1
5 to 9 Years	6	15.8	3	11.5
10 to 14 Years	5	13.2	2	7.7
15 to 18 Years	9	23.7	8	30.8
Female	7	18.4	6	23.1
Under One Year	2	5.3	3	11.5
1 to 4 Years	2	5.3	2	7.7
5 to 9 Years	1	2.6	1	3.8
10 to 14 Years	1	2.6	0	0.0
15 to 18 Years	1	2.6	0	0.0
Total	**38**	**100.0**	**26**	**100.0**

Table 53
Number and Percent of Accidental Drowning Deaths Reviewed by Location

Place of Drowning	2002		2003	
	Number	Percent	Number	Percent
Lake, River or Pond	18	47.4	11	42.3
Bathtub	5	13.2	3	11.5
Swimming Pool	14	36.8	9	34.6
Other	1	2.6	3	11.5
Total	**38**	**100.0**	**26**	**100.0**

Seven of the nine infants who drowned were in bathtubs at the time, over half of the toddlers (ages one to four) drowned in pools and over half of the older children (ages five to 18) drowned in open bodies of water.

Three of the eight bathtub drownings involved babies being left alone while in infant bath seats. An older infant gained access to the tub with a toddler sibling without anyone in the house noticing. One infant awoke from a nap in a dry tub and turned the water on. The other two infants were known to be bathing but were left alone by caregivers long enough to drown. A school-aged child with a seizure disorder drowned in the bathtub after a presumed seizure episode.

Local teams reported that DHS investigated six of the eight cases of bathtub drowning. Five of the six resulted in CPS substantiations. Other children were removed from the home in two of the cases, with a third having had children removed prior to and after the incident. The families involved in the bathtub drownings had prior contact with CPS* in four of the eight total bathtub drowning cases. In two of those cases, the prior CPS involvement was with the child who died.

Of the 23 child drownings in pools, six children were unattended when they entered the pool area through a gate. Four of these gates were known to have been unlocked at the time. In seven of the 23 cases, the pool was known to have not been completely fenced.

In nine of the 16 pool-related cases that included narrative on how the drowning occurred, there were multiple people participating in water activity at the time. In most of these cases, supervising adults simply lost track of one of the children long enough for them to drown. Of the other seven pool cases with detailed narrative, five of the victims had started out inside the house when supervisors fell asleep or became distracted long enough for the child to get outside to the pool. In another case, the mother knew the child was playing outside, but didn't think about the possibility of him entering the pool, as it was winter-time. The last pool case where detail was provided was of a teenager who drowned in a hotel pool while swimming alone.

Of the four deaths reviewed in "other" drowning locations: one was a wading pool, one was a septic tank, one was a landscape pond and one was a five–gallon bucket.

Only one of the five children who were boating at the time of the incident had been wearing a PFD. That child's life jacket was not properly snapped together and came off once he was in the water.

In only eight of the 64 drowning deaths reviewed did the team believe that the supervision of the children had been adequate at the time. Teams also saw this type of child death as being highly preventable. They indicated that the drownings were either probably or definitely preventable in 94% of the cases.

* The past CPS involvement refers to any time prior to the death. It may have been involvement with a parent when they were a child.

Local Initiatives to Prevent Child Deaths

Review teams proposed 38 prevention activities related to child drownings. Action was taken on 15 of these, including:

Muskegon – A Water Safety Committee was formed as a result of our drowning reviews. The committee has developed: a movie trailer for local theaters, a sign at the beach, bookmarks distributed in schools, placemats distributed in restaurants, presentations at schools and local YMCA, kids water safety awareness day, PSAs for the radio, water safety page added to county health department web site and an article in the local chamber of commerce newsletter. An adjoining county also formed their own similar task force with a web site, water safety games and Corps of Engineers pier and beach safety video in the works. Since our committee has been working to educate the public, we have had no drowning deaths in Lake Michigan in our county.

Ottawa – We formed a RIPTIDE group looking at preventing deaths when the surf is high in Lake Michigan. We did not initiate this action, as it is a collaborative between Muskegon and Ottawa Counties. We are attending meetings and working on activities.

Saginaw – Wrote newspaper article on pool safety.

Van Buren – Article written in local paper regarding open bodies of water around the home including landscape ponds, etc. to make community aware of the dangers.

Wayne – We talked with the CPSC regarding infant bath seats. Since parents often think they can use them to hold the baby in place in the water while they leave the bathroom to do other things, we recommended that they either be banned altogether or at least have the inattention warning moved to the front of the seat in bright red letters.

Recommendations for Policymakers

1. The Michigan Municipal League, Michigan Association of Counties and Michigan Township Association: Work with communities to enforce the Michigan Construction Codes that require local units of government to adopt and enforce pool-fencing regulations.

2. The Michigan Department of Human Services Office of Children and Adult Licensing: Promulgate child care licensing rules for barriers to pools, hot tubs or open bodies of water at regulated child care facilities.

3. The Department of Natural Resources, Michigan Municipal League, Michigan Association of Counties, Michigan Township Association and Michigan Parks and Recreation Association: Work with local communities to provide adequate signage and appropriate rescue equipment in areas of waterfront and shorelines accessible to the public. Signage should include warnings and appropriate safety precautions.

Recommendations for Parents and Caregivers

- When you are near any pool or body of water, always designate one adult to keep sight of all the children, at all times.
- Take the time to locate water sources in the areas surrounding your home (neighbor's pools, landscape ponds, etc) and make sure there are barriers in place that will keep your children away from them.
- Don't leave standing liquid in five–gallon buckets, washtubs, wading pools or any other containers around your home if you have toddlers.
- Always ensure that your children are wearing personal floatation devices when participating in recreational activities on open water (boating, jet-skiing, water-skiing, etc), regardless of age or perceived ability to swim.

Accidental – Firearm and Weapon

Background

Unintentional injuries from firearms represent less than two percent of all firearm deaths in the U.S., but of this two percent, children and adolescents are involved 55% of the time. The majority of these deaths occur when children are playing with or showing the weapons to friends.

Michigan law requires that all guns sold have locking devices on them, be sold with a gun case or storage container that can be secured and the dealer must provide free written information on the safe use and storage of firearms in the home environment. The dealer must also post a notice that states that a person "may be criminally and civilly liable for any harm caused by a person less than 18 years of age who lawfully gains unsupervised access to your firearm if unlawfully stored."

Major Risk Factors

- Easy availability of and access to firearms by children
- Children with little or no adult supervision

Michigan Mortality Data from Death Certificates

Of the six deaths that occurred in 2002 and 2003, five were male and one was female; four were white and two were black; and one was under one year of age, one was between one and four years, one was between 10 and 14 years, and three were between 15 and 18 years.

Figure 38
Michigan Accidental Child Deaths Due to Firearms and Weapons, Ages 0-18, 1990-2003

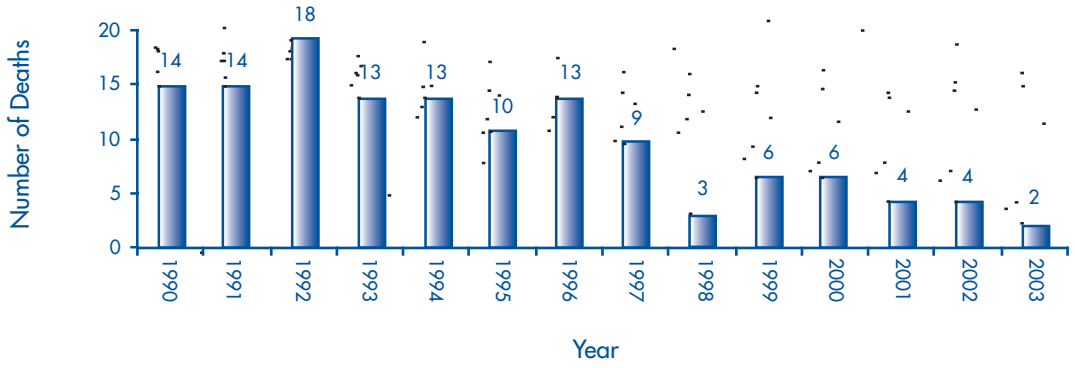
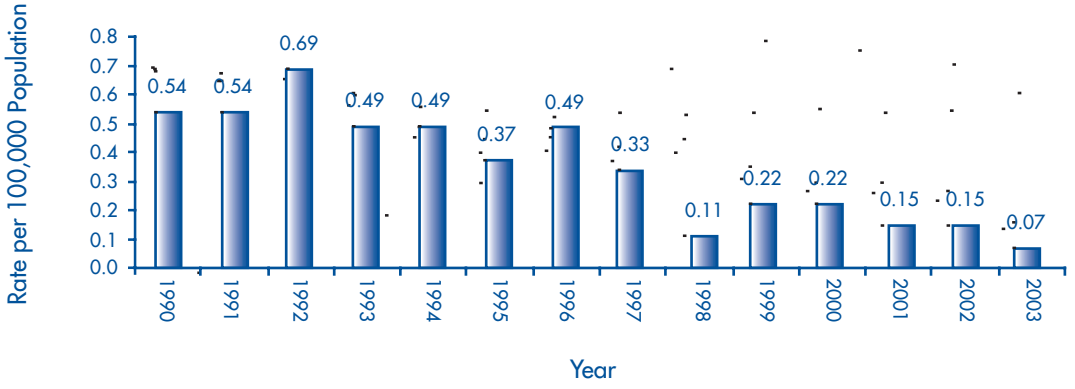


Figure 39
Michigan Accidental Child Death Rates Due to Firearms and Weapons, Ages 0-18, 1990-2003



Note: The rate of 0.15 in 2002 represents 4 deaths; the 0.07 in 2003 represents 2 deaths.

Child Death Review Team Findings from CDR Case Reports

Six reviews were conducted of child deaths that resulted from firearm or other weapon injuries that were unintentional. Two of these reviews, however, were turned in by two different counties on the same case. One was the county of residence of the child and the other was the county where death was pronounced. For the purposes of this section, the information will refer to the five children who died, not the six reviews.

The ages of the weapons victims were five months, three, 12, 13 and 18. Two cases involved handguns, one was a rifle, one was a shotgun and one was a knife.

The circumstances included two hunting incidents, an unintentional self-inflicted wound that resulted from a struggle, a child playing with a firearm found in his home and an unintentional discharge of a weapon due to improper storage. In the last two cases, the firearms were not stored in a locked cabinet and there were no trigger locks on the guns.

In the four cases involving minors, teams judged supervision to have been inadequate at the time of the incidents in three cases and in the other, the team was unsure about supervision adequacy. All five deaths were deemed "definitely" preventable.

Local Initiatives to Prevent Child Deaths

One county noted that they initiated educational activities in schools and proposed more emphasis on adult supervision in hunter safety classes. Another county wrote a letter to the local paper asking that the gun safety article that was published right after the death in their community be re-run every year just before hunting season.

Recommendations for Policymakers

1. The Michigan Attorney General's Office: Ensure statewide enforcement of the current laws that require:
   a. Federally licensed firearm dealers to provide, at the point of sale, written materials on gun safety and the proper storage of guns in homes with children; and
   b. Federally licensed firearm dealers are not to sell a firearm in Michigan without a commercially available trigger lock or other device, designed to disable the firearm and prevent it from discharging.
2. The Michigan Legislature: Enact legislation that provides specific criminal penalties to adults who are negligent in the safekeeping of guns that are used to injure or kill children.
3. The Michigan Department of Education: Take the lead in developing an education plan for family gun safety.

Recommendations for Parents and Caregivers

- If you own guns, they should be properly stored. Keep them in locked cabinets with gun safety devices in place. Store ammunition in a separate locked cabinet.
- Assess the safety of firearms storage of the homes that your children visit.

Accidental – Other Causes

Background

This section addresses unintentional injury deaths not addressed in previous sections, such as poisoning, falls and injuries sustained when the victims were crushed or struck by objects.

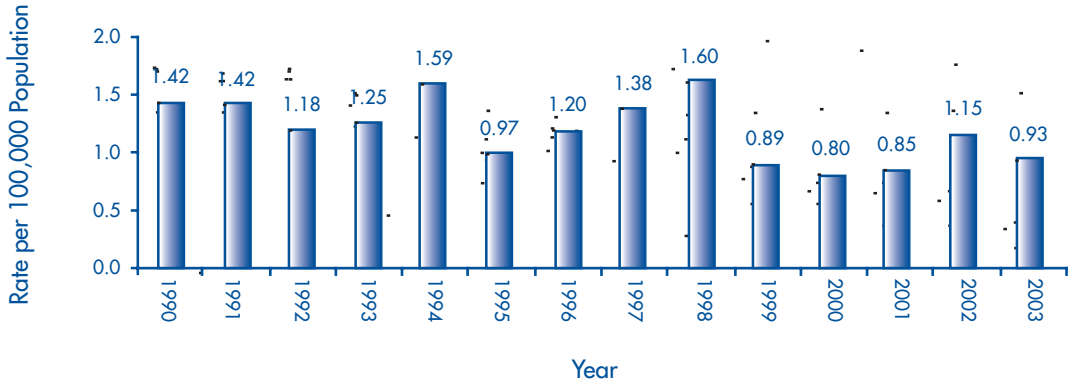
Poisoning deaths can occur due to access by young children to toxic substances and the inattention of parents or other caregivers. Carbon monoxide poisonings usually occur overnight, involving generators or other types of CO producing appliances. Teens unintentionally poison themselves by overdosing on prescription medications or illegal drugs in an attempt to get high. More than 90% of poisonings in the U.S. occur in the home.

Deaths due to crushing injuries typically occur when large, heavy objects fall onto a child. Being struck by moving objects can also cause fatal injuries in children.

Major Risk Factors

- Lack of adequate supervision from caregivers
- Homes that are not properly child-proofed
- Teens who can access strong prescription medications

Figure 40
Michigan Accidental Child Death Rates Due to Other Causes, Ages 0-18, 1990-2003



Note: The rate of 1.15 in 2002 represents 31 deaths; the 0.93 in 2003 represents 25 deaths.

Table 54
Number and Percent of Michigan Accidental Child Deaths Due to Other Causes by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	19	61.3	19	76.0
Under One Year	2	6.5	3	12.0
1 to 4 Years	3	9.7	6	24.0
5 to 9 Years	1	3.2	1	4.0
10 to 14 Years	2	6.5	3	12.0
15 to 18 Years	11	35.5	6	24.0
Female	12	38.7	6	24.0
Under One Year	4	12.9	2	8.0
1 to 4 Years	1	3.2	0	0.0
5 to 9 Years	3	9.7	1	4.0
10 to 14 Years	1	3.2	0	0.0
15 to 18 Years	3	9.7	3	12.0
Total	**31**	**100.0**	**25**	**100.0**

Child Death Review Team Findings from CDR Case Reports

Teams reviewed the deaths of 41 children due to unintentional injuries of the type not covered in previous sections.

Table 55
Number and Percent of Accidental Deaths Reviewed Due to Other Causes by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	9	47.4	16	72.7
Under One Year	0	0.0	2	9.1
1 to 4 Years	2	10.5	3	13.6
5 to 9 Years	0	0.0	1	4.5
10 to 14 Years	1	5.3	1	4.5
15 to 18 Years	6	31.6	8	36.4
19 Years and Older	0	0.0	1	4.5
Female	10	52.6	6	27.3
Under One Year	1	5.3	1	4.5
1 to 4 Years	1	5.3	0	0.0
5 to 9 Years	2	10.5	0	0.0
10 to 14 Years	2	10.5	0	0.0
15 to 18 Years	4	21.1	5	22.7
19 Years and Older	0	0.0	0	0.0
Total	**19**	**100.0**	**22**	**100.0**

Table 56
Number and Percent of Accidental Deaths Reviewed Due to Other Causes

Cause	2002		2003	
	Number	Percent	Number	Percent
Poisoning	9	47.4	12	54.5
Fall	4	21.1	1	4.5
Crushed/Struck by Object	4	21.1	5	22.7
Other	2	10.5	4	18.2
Total	**19**	**100.0**	**22**	**100.0**

Poisoning

Counter to what most people would guess, teams found that infants and toddlers were not the age groups at greatest risk of unintentional poisoning. Only one of the poisoning victims was less than four years old, while nearly three-quarters of the victims were ages 15 or older. Accidentally overdosing while trying to get high accounted for most of these adolescent poisoning deaths. Of the 12 unintentional overdose victims who were attempting to get high, all but one were 15 to 18 years of age. One was nine years old.

Of all 21 unintentional poisoning deaths reviewed, nine were prescription drugs, six were illegal drugs and six were due to carbon monoxide. Two victims were black, 17 were white and two were American Indian. The carbon monoxide victims ranged in age from six to 18. Of the nine prescription medication overdoses: two were their parents' medications; one bought it from another child who got it from his parent; two bought them from dealers; one got them from another relative; two were accidental overdoses in a hospital setting and one case did not contain information about the origins of the drugs.

Falls

Five children died from injuries sustained in falls. Four were 15 to 18 years of age and one was two years old. One fell down a flight of stairs, one fell from standing height striking their head on a curb, one fell while running down a paved sloping surface, one fell down a hill striking an object at the bottom and one fell from a garage roof. In two of the four adolescent cases, the teens had been drinking prior to the incident.

Crushed/Struck by Object

There were nine cases of crushing or striking injury death reviewed. Five children were six years of age or younger, the other four were 13-18 years of age. The objects causing the injuries were a farm wagon, a tree, a television, an adult's body, an older child's body, a bull, a heavy wooden box, a boat propeller and a pole.

Other

Of the six cases under "other," two were young children that were left in a hot car and died of hyperthermia, one was a teen that died years later from complications of a diving incident, one was a toddler that bled to death after breaking through a window, one was a disabled youth who died while lying prone in restraints and one was a youth involved in a farming incident.

Teams believed that 80% of the 41 total deaths reviewed in this section were either probably or definitely preventable.

Local Initiatives to Prevent Child Deaths

Review teams proposed 22 prevention initiatives regarding other types of unintentional injury death, and action was taken on six of these. They included:

Barry – Police and prosecuting attorney's office are stepping up investigations on methadone use.

Charlevoix - Putting posters up, brochures in offices which advocate child safety and lack of supervision of children in cars.

Hillsdale – A community-wide farm safety program was held.

Lapeer – More education in the media about carbon monoxide poisoning.

Osceola – Education provided to agencies, community members on Amish culture.

Recommendations for Parents and Caregivers

- Be sure that all areas of the house are "child proofed," including stairs, electrical outlets, storage cabinets and medication bottles.
- If you suspect that your child might be abusing illegal or prescription drugs, intervene immediately. Even "experimenters" can accidentally overdose.

Child Deaths
IN MICHIGAN
section six

HOMICIDES